

The Aggregate Landscape of Suffolk: The Archaeological Resource

Interim report for Aerial Survey component
Areas Four & Five: The Waveney Valley

Aggregates Levy Sustainability Fund
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SUMMARY



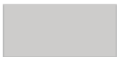

The Aggregate Landscape of Suffolk: The Archaeological Resource project is funded by the English Heritage administered Aggregates Levy Sustainability Fund (ALSF), a scheme established in 2002 to provide funds to tackle a wide range of problems in areas affected by the extraction of aggregates.

This interim report summarises the results for the second priority area to benefit from aerial survey, 74 square kilometres located on the Waveney Valley. Extending from Weybread in the west to the outskirts of Lowestoft, this area was examined using the methodology developed by English Heritage's National Mapping Programme's (NMP). The project area encompasses significant areas of past and active gravel extraction, most notably in the area of Flixton. During the project 154 new records were added to the county Sites and Monuments Record (SMR) and 34 existing records were amended.

Due to the predominantly heavy soils and tradition of pastoral agriculture in this area, earthworks were the predominant form of evidence, although cropmarks were intermittently visible on 'islands' of more freely draining soils. Early prehistoric sites were rare but the number of potentially late Neolithic or Bronze Age barrows was expanded slightly. Later prehistoric features were limited to a few cropmarks interpreted as probable field boundaries and small enclosures, the main exception being a possible Iron Age or Romano-British fort. The majority of archaeological sites from the historic periods were dated to the medieval and post-medieval period, dominated by the remains of possible moated sites and shrunken settlements. As established in previous aerial surveys in East Anglia, modern military remains are now expected to form a significant component of the survey. In this instance RAF Bungay and several associated camps formed the core of these records and anti-invasion defences were very limited in number, due probably to the inland nature of the survey area.

This area had been well documented by the county SMR and traditional development led archaeological investigations, particularly in areas of aggregates extraction. That this survey has added significant detail to the Sites and monuments record illustrates the value of aerial survey to areas potentially threatened by future extraction.

MAPPING CONVENTIONS

Convention	Layer	
	Ditch	Used for drawing all negative features seen as cropmarks and earthworks, e.g. ditches, hollow ways and pits
	Bank	Used when drawing upstanding earthworks or levelled features
	Structure	Used for structures e.g. a concrete pillbox or wooden posts
	Pits & Quarries	Used for extraction pits, bomb craters and other cut features

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1. INTRODUCTION

The Aggregate Landscape of Suffolk: The Archaeological Resource is a project which intends to improve the quality of information available to Suffolk County Council for use in making decisions about archaeological mitigation in response to current and future aggregate industry applications. The project is funded by the Aggregates Levy Sustainability Fund (ALSF), administered by English Heritage. This is the second in a series of two interim reports summarising the aerial survey results for selected priority areas. The conclusions and recommendations of the interim reports will be collated, analysed and scored at the end of the overall project.

The wider objectives of the project can be summarised as:

- 1: To provide a historic environment framework for examining minerals data.
- 2: To improve the detailed archaeological and historic environment information for the minerals resource areas.
- 3: To produce a detailed research and management framework for the historic environment in minerals resource areas.
- 4: To make project information available for planning, industry and public consultation.

A range of sources will be consulted by Suffolk County Council to meet these objectives. The baseline data will include:

Geological data

The Sites and Monuments Record (SMR)

The National Monuments Record (NMR)

Listed Buildings (LB)

Historic Landscape Characterisation

Under objective two, the aerial survey component is targeted towards two priority mineral resource zones. The second area, the Waveney valley, comprising project areas Four and Five, is an area composed largely of sand and gravels, encompassing major spent and active mineral workings, as at Weybread and Flixton, although also including significant areas of estuarine peat beds.

1.1 Project Area

The project area comprises 74 square kilometres in a two to three kilometre wide strip, following the Suffolk side of the River Waveney along the county boundary with Norfolk from Weybread in the west to the outskirts of Lowestoft. The most easterly point of the project area is three kilometres west of an area previously surveyed by the Suffolk Coastal National Mapping Programme (NMP) project (Hegarty and Newsome 2005). (See Figure 1)

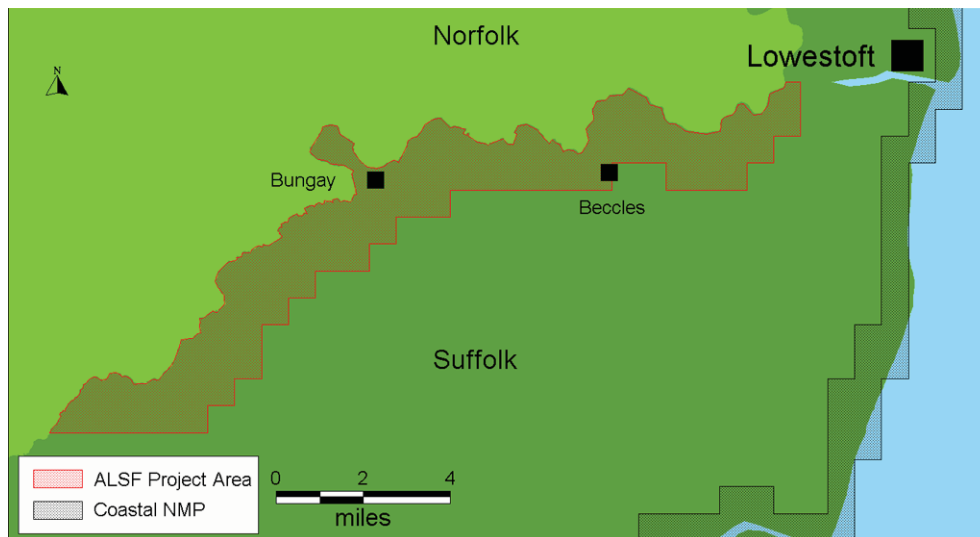


Figure 1: Location of survey area.

1.2 Methodology

The aerial survey was carried out to NMP standards as laid out in the current draft of the NMP Manual (Aerial Survey 2006). In brief, the survey systematically examined all readily available aerial photographs held by the National Monuments Record (NMR). The intention was also to examine all available Cambridge University Unit for Landscape Modelling (formerly CUCAP) prints, but this was not possible due to difficulties in formalising loan agreement and timescale restrictions.

All archaeological features visible on aerial photographs, dating from the Neolithic period to the twentieth century were interpreted and recorded on the Suffolk County Council SMR and transcribed onto a linked digital map layer in a Geographical Information System, with an accuracy of two metres to the base map. The manner in which each feature is depicted is determined by the form it takes on the photograph, i.e. whether it is visible as a cropmark, structure or earthwork. More information on NMP methodology can be found in Appendix One and mapping conventions are summarised on page v above.

For monitoring and loan management reasons the survey was divided into three roughly quarter-sheet equivalent areas. A six figure National grid reference and an SMR number have been provided for all sites mentioned in the text.

1.3 Photograph Coverage

Over 1400 vertical photographs and four hundred specialist oblique aerial photographs were examined during the survey.

The vertical coverage was not consistent, chronologically or geographically, across the survey area. The number of available photographs decreased every decade from the 1940s by between circa 10% and 40% until the 1990s, which saw an almost 50% increase over the 1980s. Although arbitrary geographical divisions, the different proportion of prints available for each quarter sheet equivalent area reveal a noticeable pattern, the most notable trend being that over twice as many vertical

photographs were taken of the central area, which contains RAF Bungay, than either of the other two areas.

Nonetheless, despite relatively low numbers of prints compared with previous surveys, the general quality and coverage of the vertical photographs was good. The 1940s and 1950s RAF sorties were particularly valuable for recording the concentration of wartime military installations around Bungay Airfield (see section 9.3). 1940s RAF coverage also proved particularly valuable for identifying earthwork remains on the drained and reclaimed valley floor. It was often possible to identify such features as cropmarks or soilmarks on later, higher quality images and compare the evidence of these sources. Most often this included Meridian and Ordnance Survey prints from the 1960s to 1990s, flown following the conversion of much of this reclaimed land to intensive arable cultivation.

Conversely, specialist archaeological oblique coverage was generally poor with very few good quality recent images. Much of the available coverage focused on historic townscapes or individual buildings of historic or architectural interest. Unfortunately, of the few that contained archaeological subjects most were poorly composed and made little provision for image rectification by the inclusion of map control points.

Consequently the majority of the features recorded by the survey are earthworks or levelled earthworks derived largely from the vertical collections, with the small number of cropmark features visible mostly concentrated in the western half of the survey area. This corresponds with areas of loam soils and small islands of gravel (see section 2).

The relatively low vertical coverage and very limited specialist oblique coverage is probably a result of several factors. An important consideration is the presence of two Second World War airfields in this area; Beccles airfield (ELO 009) to the south of the project area and RAF Bungay (BUN 056) within it. Some of the variation in vertical coverage may be a direct result of the airfields' locations. However, geological and topographical factors may have been more influential over recent years. These considerations are summarised below (see sections 2 and 3). The increase in vertical coverage of Area B in the 1990s is due to regular annual Ordnance Survey reconnaissance, possibly to record changes to the communications infrastructure in this area between 1991 and 1995 (see section 2.2).

2. LANDSCAPE CHARACTER

2.1 Geology

In general chalk is the principal bedrock of Suffolk. However, towards the coast this is overlain by deposits of the Pleistocene and Holocene periods, mainly a shelly deposit known as Crag. Within the survey area the drift geology comprises chalky till, alluvium and fen peat to the east, with the minerals resource composed of a variety of river terrace gravels and sands. The soils are predominantly poorly drained, comprised of deep sands, loam or clay with large areas of peat, again to the east.

2.2 Land-use

The River Waveney forms the northern boundary to both county and survey area in this area. This survey is therefore examining only the Suffolk half of this riparian landscape, and the conclusions contained within this report must be considered in comparison with the evidence of the Norfolk NMP survey, currently in progress. It is unsurprising that the character of the survey area is predominantly riverine and this may be the greatest single factor influencing the visibility of archaeological landscape features in the survey (see section 3.1).

To the south of the survey area the highest elevations, ranging between 35 and 50 metres O.D, are divided into a series of low spurs by small tributaries, streams and drains feeding into the Waveney. However a large proportion of the project area sits below 5 metres O.D. Consequently, water-management systems are visible along the course of the River Waveney, from the high and narrow south-western reaches of the river, to the broad river bed and extensive drains and flood defences to the east of the survey area.

As on the coast (Dymond 1999; Hegarty and Newsome 2005; Hegarty 2006), from the medieval period until the twentieth century the agricultural economy of this area consisted of a mix of arable and pastoral, linked to a network of heaths and commons. This was probably complemented by use of the extensive marshland natural and semi-natural resources, what Williamson (1997) has called intermediate exploitation. Unlike much of the coast, however, the economy on the Waveney valley probably developed a greater focus on dairying than wool (Theobald 1999). The dominant field pattern is irregular and suggestive of the early non-parliamentarian enclosure described by Dymond (1999), although a small number of parishes to the east of the survey area contain high levels of parliamentary enclosure (see section 8).

the decades following the Second World War significantly changed the character of the agricultural landscape. As seen elsewhere in Suffolk (Hegarty and Newsome 2005; Hegarty 2006) intensive arable agriculture has encroached onto both the commons and former marshland while industrial aggregates extraction has transformed large areas.

The large port town of Lowestoft is situated 3 kilometres to the east of the survey area. The only settlements of any size within the survey area are Bungay and Beccles, both medieval villages that have experienced rapid expansion in the twentieth century. The current settlement pattern in the remainder of the survey area is dominated by dispersed hamlets or farmsteads, with a notable concentration

on the marsh edge. Moated sites a frequent occurrence within these settlements and high status dwellings are present at Mettingham Castle and Flixton Hall, the latter surrounded by extensive parkland.

Post-war housing development appears to have remained relatively slow until the 1980s, the subsequent expansion possibly partly facilitated by the growth in the aggregates industry and improvements in the road infrastructure, specifically the widening of the B1062 between Bungay and Beccles. The development and expansion of the freight industry at the port of Lowestoft may also have increased the local population.

The Waveney valley was also affected by the conflicts of the twentieth century, although not as dramatically as the coast (Hegarty and Newsome 2005). Second World War and later military development was focused on the airfields at Bungay and Beccles although it is apparent the communications infrastructure was perceived as requiring some protection. This topic will be discussed in more detail in section 8.

2.3 Implications for the Aerial Survey

The geology and heavy soils of the survey area have influenced the range of features recorded from aerial photographs during the survey. For instance, despite the plentiful evidence recorded on the SMR for activity in this area from the Neolithic onwards, both from 'stray' small finds and excavation, cropmarks of probable prehistoric monuments have been few. One possibility is that this is a reflection of monument builders' preference for the lighter soils of the Sandlings and Breckland (Martin 1999; Lawson, Martin, Priddy, and Taylor 1981). The few visible exceptions appear to be located on isolated patches of gravel. In contrast, potentially medieval or post-medieval cropmark sites occur relatively frequently.

Palaeoenvironmental studies of the Broadland area suggest a major estuary fed by the Bure, Yare and Waveney in the early 1st millennium AD with a potential reach as far as Bungay and access to the sea over the modern Great Yarmouth area (summarised by Murphy in Darling and Gurney 1993, Figure 168); recent work on a timber structure in Beccles Marshes may modify detailed knowledge of the Waveney sequence. Before the embanking of the River and reclamation of much of the river floor created the landscape visible today, the poorly draining soils described above resulted in a marsh conditions liable to flood over much of the project area. It is therefore likely that few archaeological landscape features within the reclaimed area predate the Saxon period, and those that do are concealed from aerial survey by silts and alluvium.

The removal of numerous historic field boundaries during the period following the Second World War has significantly altered the probably medieval and early non-parliamentary enclosure pattern of field boundaries. The two greatest considerations in this are the modern expansion of arable agriculture and rise of industrialised aggregates extraction. An additional factor in this was the emparkment of Flixton Hall in the mid-19th century, now negated by the subsequent establishment of industrialised aggregates extraction within the former parkland. Similarly, the increasing arable cultivation of the reclaimed former marshes has

levelled much of the earthwork evidence for the reclamation process itself. These subjects are discussed in more detail in section 8.4.

Beyond the construction of a few relatively short-lived satellite camps, the impact on the surrounding landscape of the Second World War airfields at Bungay and Beccles appears to have been minimal. Bungay continued in military use as a bomb storage site until the 1950s and was sold in the early 1960s. Beccles closed after the war and remained on a 'care and maintenance' basis until 1965 when it became a heliport serving North Sea oil rigs. Since 1997 the airfield has been used by light aircraft. Therefore, although the military aerodrome traffic zones (MATZ) around each site may initially have limited post-war oblique archaeological and commercial vertical reconnaissance in this area, their direct impact on the landscape was low. The modern military remains are discussed in section 9.

3. INTRODUCTION TO THE PREHISTORIC EVIDENCE

In contrast to the results summarised in the first interim report for the Felixstowe peninsula (Hegarty 2006), evidence for all prehistoric periods is limited in this area. The upper tidal reaches of the of the 'Great Estuary' probably limited permanent agriculture in this area from the Bronze Age onwards, but the fringes of this watercourse may have presented an attractive setting for funerary monuments and settlement.

The majority of identified prehistoric features are plough-levelled and visible only as cropmarks. Most have been interpreted as Bronze Age in date, the probable remains of funerary monuments. Two exceptions to this are possibly the earliest features identified in the survey, a bank defined enclosure and post built structure potentially of Neolithic date.

The evidence for the later prehistoric and Romano-British period is extremely fragmentary, confined to 6 possible sites. Nonetheless, this limited evidence provides an indication that this area was settled in the later prehistoric period, and may hint at some continuity of occupation. These periods will be summarised in a separate chapter.

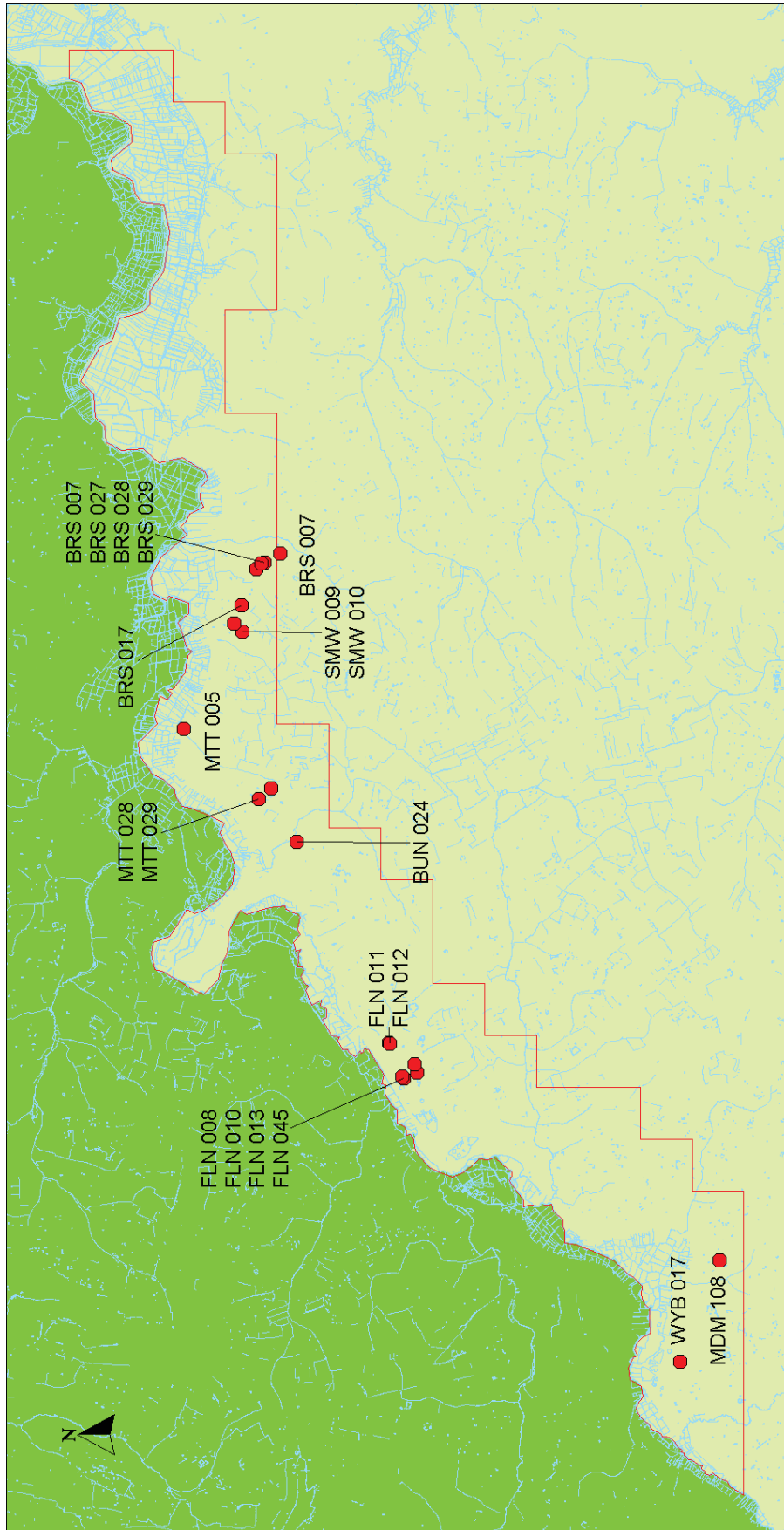


Figure 2: Neolithic and Bronze Age sites mentioned in the text.

4. THE NEOLITHIC

Two features have been hesitantly interpreted as a possibly being of Neolithic date. The first is a possible mortuary enclosure in Mettingham parish (MTT 029; see Figure 3). The enclosure in Mettingham parish is roughly rectilinear in shape, approximately thirty metres in length and twenty five broad and is defined by a very low earthwork bank up to 4 metres wide. The site is morphologically similar to Jones' oblong rectilinear enclosures, although of shorter proportions than most recorded in Lincolnshire, and may be part of the East Anglian tradition of 'long barrow type' features (Jones 1998; Lawson, Martin and Priddy 1981, 21). Unlike the majority of sites identified as possible mortuary enclosures from the air, no earthwork or cropmark evidence for an accompanying outer ditch is visible on the available aerial photographs. However, as the site is visible in pasture on aerial photographs of the 1940s, possibly in the area of Mettingham's former Green, it may never have been under the plough prior to being photographed. Mortuary enclosures with internal ditches are known from Rivenhall, Essex and Dorchester, Oxfordshire (Buckley, Major and Bilton, 1988) and Ashwin describes an ovate 'banked-and ditched enclosure of unknown function – conceivably a mortuary enclosure' at Weasenham, Norfolk, that was destroyed during the Second World war (Ashwin 1996, 45). It may be that the remains of such a bank are visible here.

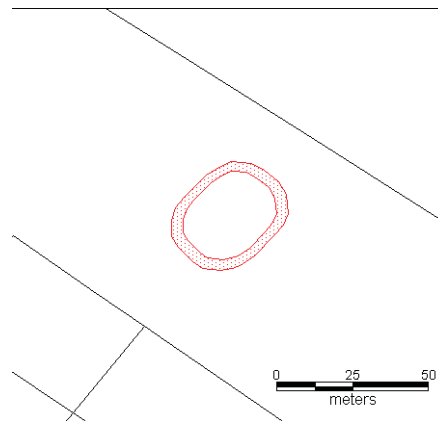


Figure 3: Possible mortuary enclosure (MTT 029, TM 357891)

The known national distribution of mortuary sites shows a demonstrable preference for river valley locations (Harding and Barclay 1999; Hegarty 2006a), although, for the Bronze Age monuments at least, Lawson *et al* (1981, 77) argue that this simply reflects the monument builders' preference for lighter soils. The situation of the enclosure, atop a spur overlooking the Waveney and its tributaries, is consistent with these previous topographical findings in Suffolk, but may simply reflect the sampling strategy to date. Nonetheless, Neolithic activity is attested to in this area by finds recorded close to the site, including flint artefacts to the west (BUN MISC) and a polished stone 'celt' (a form of axe) discovered close to Mettingham Castle (five hundred metres to the south) in the mid 19th century. However, the characteristic association with other ritual Neolithic monuments and clustering of Bronze Age round barrows identified at many other possible mortuary enclosures is absent (Buckley *et al.*, 1988; Harding and Barclay 1999; Lawson *et al.* 1981, 21), with the exception of one possible small ring ditch three hundred metres to the north-west (MTT 028) and a second recorded on the SMR as being located five hundred metres to the north-east but which was not confirmed by this survey (MTT 015). If this site

proves to be of Neolithic date it will be the most northerly known example of this site type in the county and possibly the first to be identified on clay.

Another site, which could date from the Neolithic or early Bronze Age, is visible in Barsham parish. Cropmarks are visible forming over two rows of parallel features, possibly postholes or post-pits one to two metres wide and spaced between three and four metres apart (BRS 017, TM392897; see Figure 4). The site is crossed by a linear feature of later, probably medieval or post medieval date, partially obscuring the post-holes. A tentative interpretation of this site is made, as the remains of an early or middle Neolithic post built structure, up to 18 metres long and approximately five metres wide, although the southern extent of the site is unclear and the plan is probably incomplete.

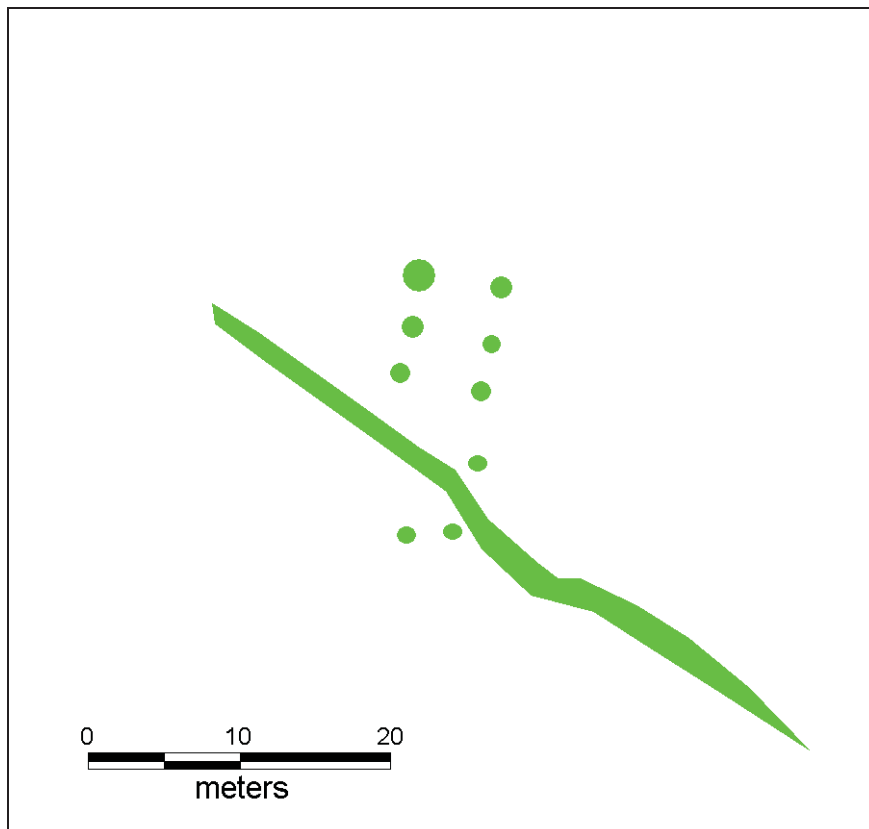


Figure 4: Possible Neolithic post built structure (BRS 017, TM392897)

The function of such structures, often called 'houses', is unclear and remains the subject of debate. Past interpretations have been coloured by modern 'expectations and prejudices' projected onto societies envisaged as progressing from a Mesolithic hunter-gatherer existence towards agriculture and sedentism, and have therefore placed culturally loaded roles as domestic structures upon such buildings (Thomas 1996, 1). However, more recent studies are keen to blur distinctions between sedentary and seasonal occupation and possible 'ritual' and 'domestic' functions (Thomas 1996; Topping 1996). However, this report is not the place for such a discussion.

However, a number of points can be mentioned in consideration of a possible Neolithic date. Topping (1996) states that many of the known British Neolithic houses are aligned east/south-east to west/north-west but that a significant number

of exceptions (for example Lough Gor A, Trelystan A and B, Hembury) are aligned on, or near to, north-south. In addition, the dimensions of this structure place it well within the nationally known scale of early or middle Neolithic structures, comparable for instance to Ballyglass in Ireland (Topping 1996, fig.11.3-3). It is significantly smaller than the only other possible Neolithic longhouse in Suffolk, within the causewayed enclosure at Freston (FRT 023; see Hegarty and Newsome 2005, 21-22). However, the unusually long Freston structure may have more in common with the much larger (and wider), example at Balbridie. Nonetheless, if the Barsham site were found to be of Neolithic date, the rarity of this class of monument would also ensure it was of national importance.

However, caution must be exercised when interpreting such cropmark evidence. Upon excavation such post built features can prove to be much more complex than is apparent from the cropmarks alone (cf. Witton, Lawson 1983. 40; 74). Similar features from elsewhere in Britain have revealed a possible Anglo-Saxon date (Current Archaeology 1980, 326-8) and discoveries of post built structures in Suffolk have suggested a Roman date (Plouviez, pers. Comms.). Such possibilities are summarised in sections 6 and 7.

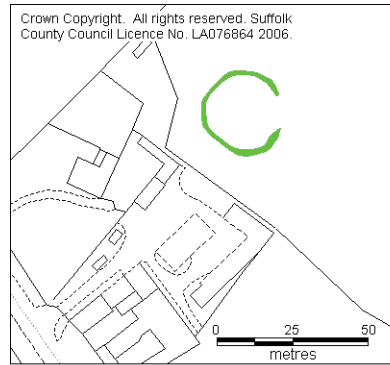
5. THE BRONZE AGE

Evidence of Bronze Age settlement is notoriously difficult to distinguish from later settlement patterns, aerial survey more easily identifying the characteristic form of ritual or funerary monuments (Martin 1999; Ashwin 1996, 52), particularly ditch defined monuments such as barrows, with the inherent problems of interpretation this brings (Wilson 2000. 101-102). This survey proved to be no exception, but in contrast to previously examined areas, the evidence was limited to just eighteen possible barrows visible as cropmarks (see Figure 5). Fifteen were visible as ring-ditches with just two showing any evidence of possible levelled earthwork mounds. Only two demonstrated any possibly relationship with later cropmark features (BRS 017 and WYB 017). Of the eighteen only six are new to the SMR (MTT 028, BRS 017, BRS 027, BRS 029, SMW 009 and SMW 010) and due to characteristics somewhat atypical for Bronze Age barrows, three of these have been recorded as 'undated' (BRS 017, MTT 028, SMW 009).

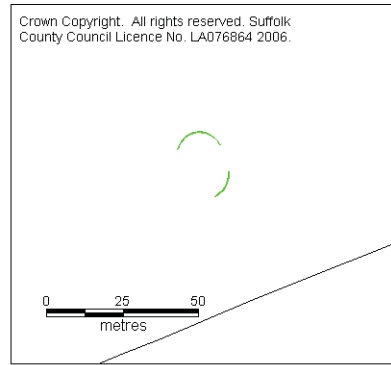
Four of the six newly identified possible barrows are located within two groups, with previously known examples, at Barsham and Flixton, possibly the remains of barrow cemeteries (see Figure 6). If these groupings do form cemeteries, the concentration of possible barrows within these groups remains relatively low (the largest group at Flixton containing only six ring ditches), with an observable preference for monument pairing, a pattern noted in a previous interim report (Hegarty 2006). The pairs of barrows are however, unusually widely spaced.

A consideration of the local soil conditions may indicate alternative interpretations for this pattern. The greatest ring ditch concentration, at Flixton, occurs on an area of well drained sandy soil within the predominantly clay and till landscape. It is possible that the lighter soil acted as a focus for increased monument building, a possibility which may be supported, and potentially partially explained, by the very recent discovery of an elongated oval enclosure of possible Neolithic date, currently under excavation (Good 2006 pers.comms.). This feature was not noted during the aerial survey and its discovery came to the attention of the author too late to allow the area to be revisited. However, future aerial survey would benefit from a reappraisal of the visible evidence in this locality in light of this find. Alternatively, the unusually wide spacing within the possible cemeteries may simply be a clearer reflection of the actual density of isolated and paired barrows in the wider project area, and as seen elsewhere in Suffolk, but less visible on the poorly responsive surrounding heavier soils (Hegarty and Newsome 2005; Hegarty 2006). This may be supported by the pairing of ring ditches visible within the Barsham group which is on heavier soils.

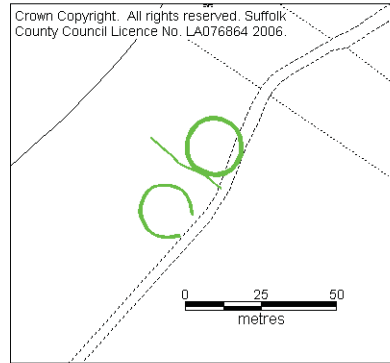
However, as noted by Ashwin for Longham and Bittering in Norfolk (Ashwin in Bruck, 2001), it is difficult to generalise about prehistoric activity from the limited evidence provided by such localised areas of lighter soils, even a small area such as this, and further investigation is required to fill out the monument distribution.



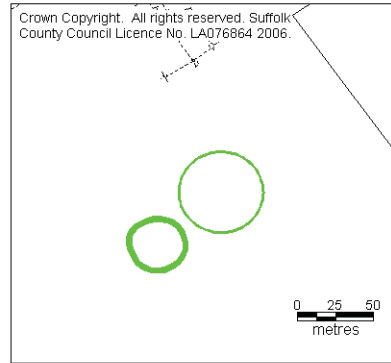
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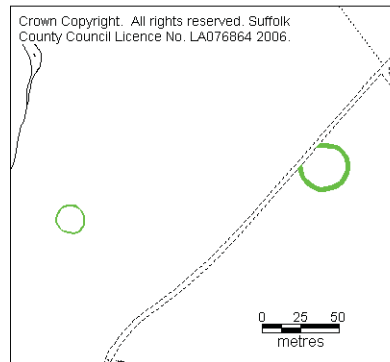
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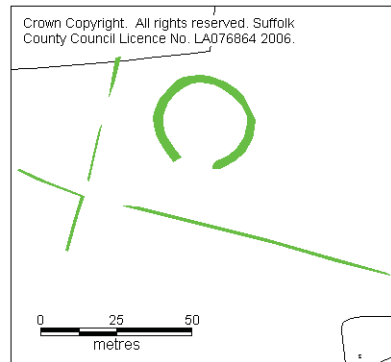
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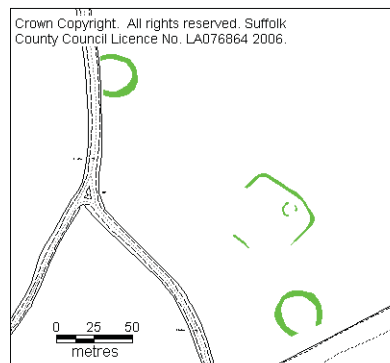
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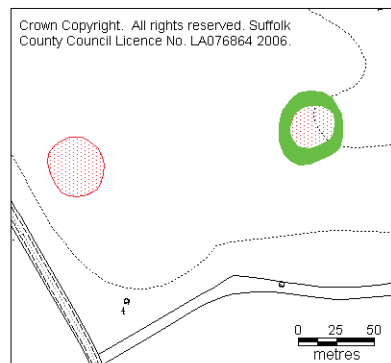
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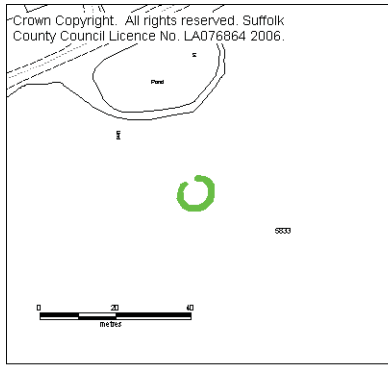


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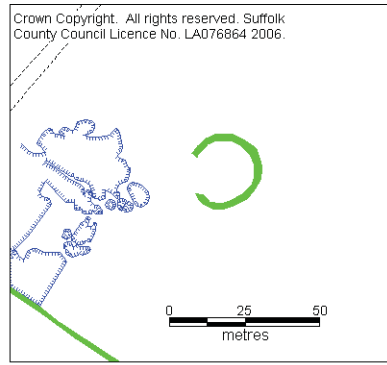


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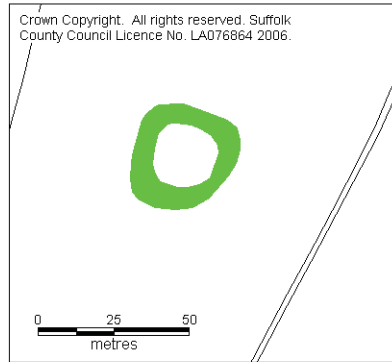
Figure 5a: All possible Bronze Age barrows date located in the survey area. A: BUN 024; B: MDM 108; C: FLN 011 and FLN 012; D: FLN 008 and FLN 045; E: FLN 010 and FLN 013; F: WYB 017; G: BRS 027 and BRS 029; H: BRS 007.



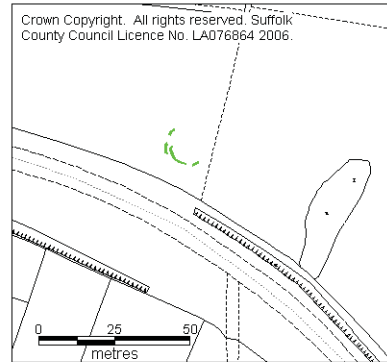
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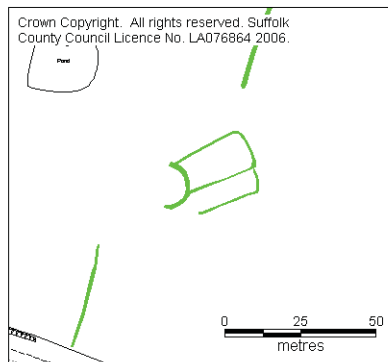
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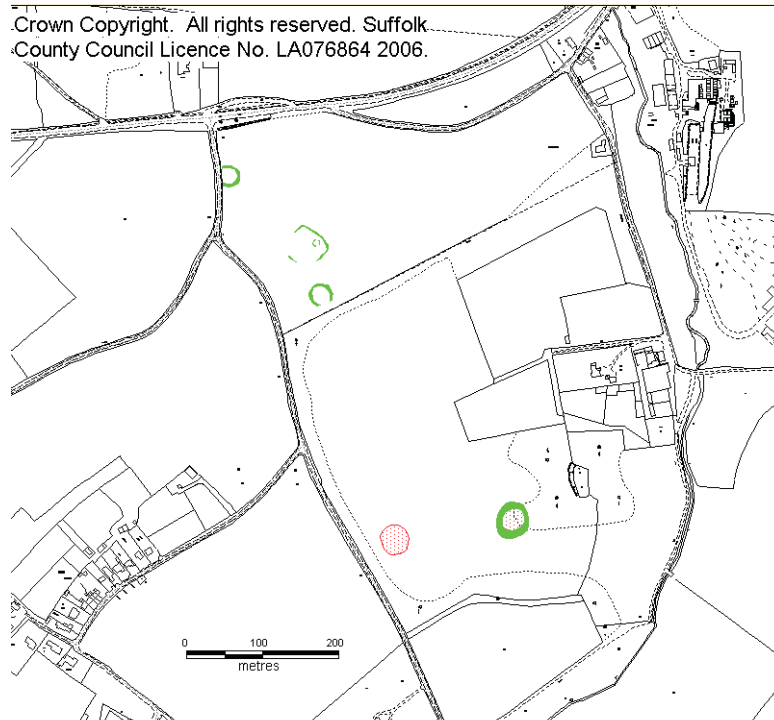


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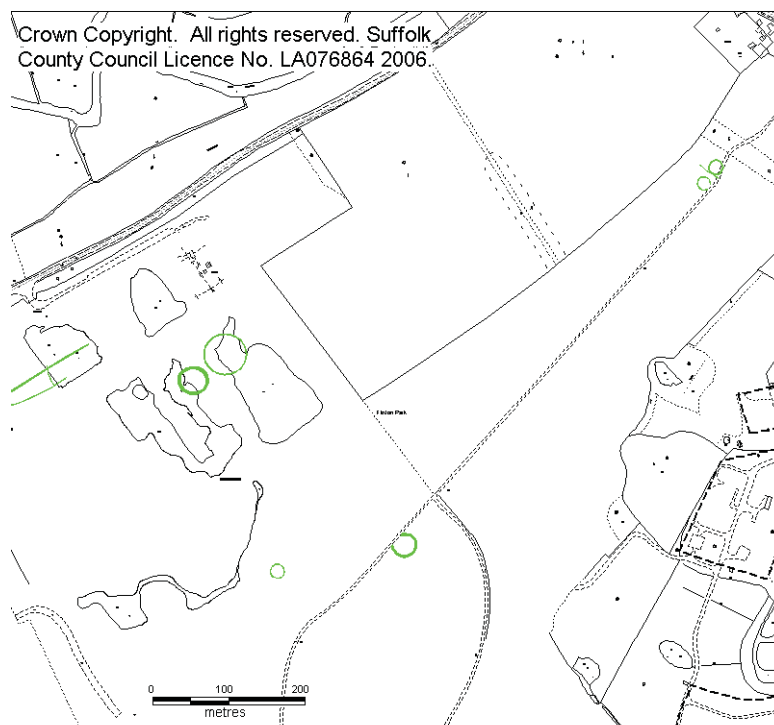


M

Figure 5b: I: MTT 028; J: MTT 005; K: SMW009; L: SMW 010; M: BRS 017. (A, B, C, F, I, J, K, L, M at 1:2500; D, E, G, H at 1:5000).



A



B

Figure 6: Concentrations of barrows forming possible cemeteries, have been identified in Barsham parish (A) and in Flixton parish (B).

6. THE IRON AGE AND ROMAN PERIOD

The difficulties inherent in distinguishing between Iron Age and Romano-British features from aerial photographs alone are well established and will not be discussed in detail here (Hegarty and Newsome 2005, 33). For ease of discussion monuments identified as dating to these periods will be summarised together in this chapter.

In stark contrast to the results of previous aerial surveys in Suffolk, the cropmark evidence for the Iron Age and Romano-British period has proved to be extremely meagre and disjointed in this area. This is undoubtedly a consequence of the heavy soil conditions dominant throughout much of this area, although this is simply probably a result of poor cropmark formation, rather than a reflection of true settlement distribution. Nonetheless, the general tendency towards the identification of ditch defined features, such as enclosed sites, ring ditches and field boundaries has held true, although at a much reduced scale.

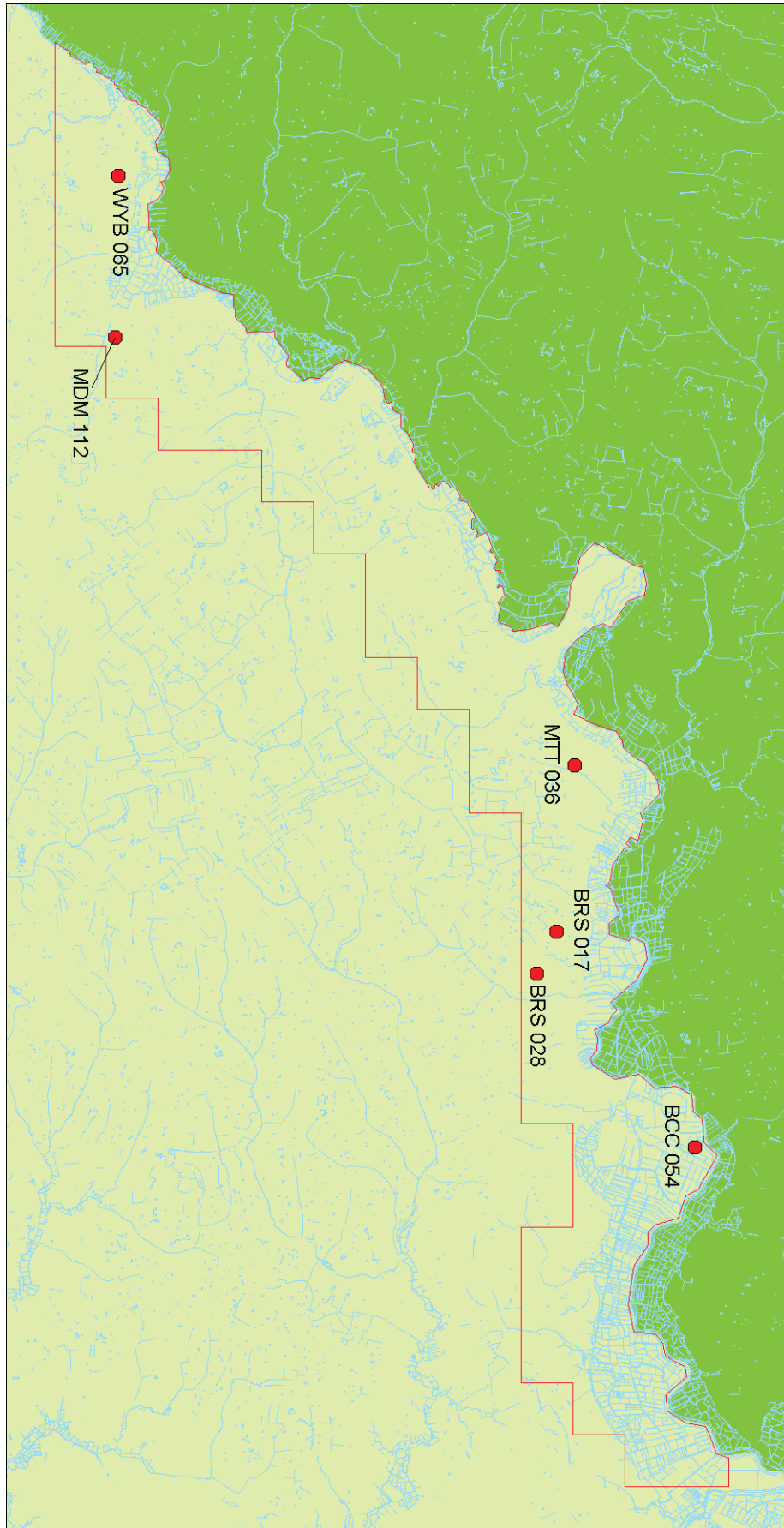


Figure 7 Iron Age and Roman sites mentioned in the text.

6.1 Agriculture and Settlement

Evidence for agricultural activity in the form of field boundaries is scant but an exception can be seen on a second small area of well drained soils in Weybread parish. Although not extensive, two cropmark complexes divided by Harleston Road (see Figure 8A, WYB 064 & WYB 065 centred on circa TM 245811) are unusually clear for this area. Some of the western linear cropmarks are probably ditched or grubbed up field boundaries of medieval or later date, but the eastern group, adjacent the ring ditch WYB 017, includes the remains of ditched field boundaries and fragments of ditched trackway on a different alignment, possibly of later prehistoric or Romano-British date. Their possible association with the ring ditch WYB 017 is discussed below. As above for the Bronze Age funerary monuments, this window of clearer cropmark formation provides an insight into the form and distribution of later prehistoric and Romano-British settlement, only hinted at elsewhere. Such a hint is visible on the clay in Barsham parish, where a rectilinear ditched enclosure is visible located between two possible Bronze Age barrows (BRS 028, TM 401893; see figure 8D). Although visible only as a fragmentary cropmark on one run of vertical photographs, this type of rectilinear enclosure is relatively common in Suffolk and is well documented elsewhere (c.f. Hegarty 2006 Fig. 11A; Hegarty and Newsome 2005, Fig. 13F & G; Winton 1998, Fig. 2.2) and is interpreted as dating from the Iron Age or Roman period. That it encloses a ring ditch is not definitive evidence for a domestic occupation and further investigation is necessary to identify a function for the site.

A further area of interest is visible amongst the palaeochannels, relict flood defences and modern drainage channels of Beccles Marshes. A number of possible ditched enclosures are visible as cropmarks on one run of 1950s vertical photographs. The dimensions of the possible enclosures, particularly BCC 054 and BCC 064 (TM 434923 AND TM 441922 respectively), are comparable to many of the rectilinear enclosures interpreted as later prehistoric or Roman in date, recorded towards the Suffolk coast (see Figure 8F; c.f. Hegarty 2006, figs. 11-13 Hegarty and Newsome 2005, figs. 13-15), but unlike the terrestrial examples they appear relatively isolated and unconnected by tracks or field boundaries. Likewise, the smaller possible enclosures (BCC 055, BCC 061 and BCC 062) are not visibly associated with each other, but if identified elsewhere might have been interpreted as small agglomerate settlements of later prehistoric or Roman date, BCC 055 and BCC 062 in particular. However, this wetland environment does not seem to be a plausible location for any form of settlement. In addition, the soils of this area are dominated by peat deposits, an unlikely location for such features to be visible as cropmarks. The possibility that these features are naturally occurring phenomena must be considered and may account for the anomalies described above. The visibility of any surface features earlier than post-medieval in date is also probably reduced by the accumulation of silts, which undoubtedly occurred during the reclamation process, potentially several metres thick.

Conversely, the recent discovery of a timber track or causeway of probable later-prehistoric or Roman date, approximately 1.5 kilometres to the west of these features attests to some early activity in this area. It may be possible that deeply ditched enclosures were constructed on small variations in the local topography. A post medieval or later date may be precluded as BCC 062 appears to be overlain by the probably post-medieval relict flood defence bank BCC 063. Due to the uncertainty surrounding these features, until their existence can be confirmed and a

more precise date obtained by fieldwork, the features illustrated in Figure 8F have been recorded on the SMR as 'undated'.

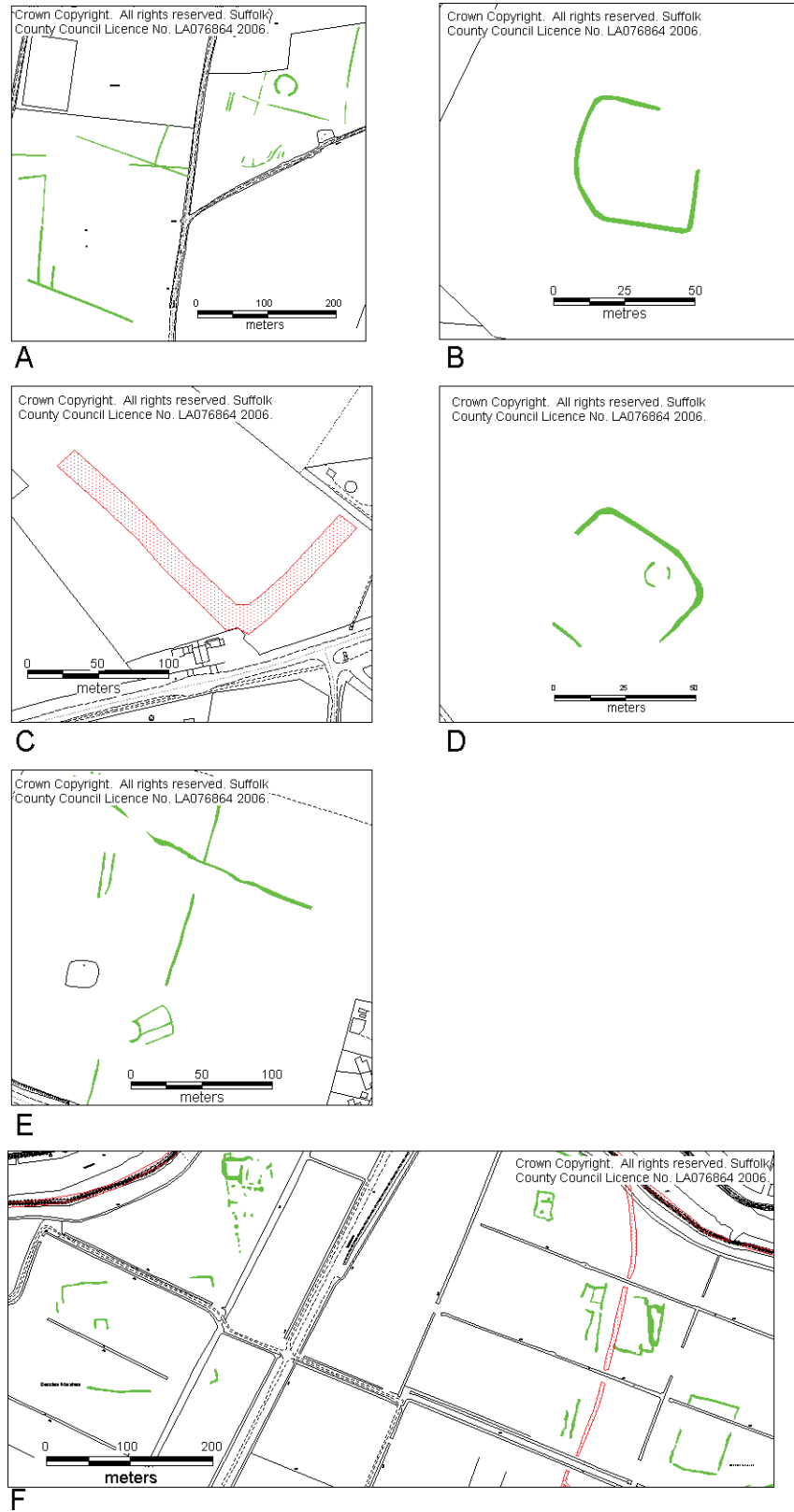


Figure 8: Possible Iron Age and Romano-British agriculture and settlement.

A final comment must be made in relation to the post built structure BRS 017, (TM392897), described above in section 4 as potentially of Neolithic date (see

Figure 4). Aisled buildings have also been identified as a characteristic type of agricultural building in the Roman period. Morris (1979) states that such buildings are often of light exterior construction, built around posts of up to 50 cm diameter set within post pits well over a metre in diameter, which could result in cropmarks of this nature. The structure is also well within the expected size range for such features, usually between 5-7 metres wide and varying in proportions between 2:1 to 4:1 (Morris 1979, 62-4).

However, little evidence to support an interpretation of function has been identified. Often identified as subsidiary structures to villas or wholly agricultural industrial sites (Morris 1979, 58; Hingley 1989, 41), no finds evidence is known in this area to support any such role

6.2 Relationship with earlier features

It is interesting to note that even with the limited cropmark evidence, the previously observed theme of relationships between later prehistoric boundaries and earlier landscape features is visible (Hegarty 2006; Hegarty and Newsome 2005, 41). For instance, the probably later prehistoric field boundaries WYB 065 described above (Figure 8A) appear to respect and incorporate the location of ring ditch WYB 017. This could be explained by ascribing a Bronze Age date for the field boundaries or indicate that the possible barrows retained some significance in later landscape organisation, either as territory markers or due to more intangible social considerations. A more direct form of association is visible within the multi-period cropmark complex recorded as BRS 017; agglomerate rectilinear enclosures appear to abut a possible Bronze Age ring-ditch, creating a form of 'keyhole' shaped enclosure (Figure 8E).

6.3 Military or Defensive sites

The final feature to be summarised in this section is tentatively interpreted as a possible fort of Iron Age date. A pale 'L' shaped soil or cropmark approximately fifteen metres wide, is visible on only one run of 1951 vertical photographs, stopping at the contemporary field boundaries (MTT 036; see Figure 8C). Provisionally interpreted as the southern corner of a possible Roman fort, discussion with Suffolk County Council Archaeology Services staff prompted a reappraisal of the site as a possible Iron Age fort or enclosure. Although not abundant, a number of late Iron Age forts are known from Norfolk and Essex (Davies, Gregory, Lawson, Rickett and Rogerson 1991; Morris and Buckley 1978). In contrast, only three are known in Suffolk and their function is unclear. A bivallate enclosure site at Clare on the Essex Border is undated but is possibly Iron Age in date. A small (circa 1 ha) double ditched rectangular enclosure at Barnham has been excavated, but Gregory and Rogerson classify this with the smaller Thornham type of enclosures in Norfolk rather than the larger fort group (c.f. Gregory and Gurney 1986). In addition, the discovery at Barnham of a clay lined trough and articulated human leg overlying a small pit, underneath the inner rampart have suggested a ritual element to this site, comparable to the continental ritual 'viereckschanzen' rectangular enclosures (Martin 1991). The large ramparts and occupation evidence at the much larger (7ha) rectangular double ditched and banked enclosure at Burgh near Woodbridge do suggest a consideration of defence in its construction. However, the absence of fortifications in its south-western corner, and identification of a large pit (7.5 x 6.3

metres) containing a human skull in their stead, is suggestive of religious or ritual significance (Martin 1991).

Although in a variety of topographical situations, it has been suggested that the rectilinear Iron Age forts of East Anglia share a range of characteristics which set them apart from the more irregularly shaped forts (Gregory and Rogerson 1991). In contrast to the hill forts of south, west and north of England, many of the known East Anglian sites demonstrate a preference for river valley locations, particularly 'valley edge, bottom or analogous locations' (Gregory and Rogerson 1991, 69). A rectangular form is also a commonly occurring trait, as seen at Barnham, Burgh and Warham Burrows (Gregory and Gurney 1986).

Situated at approximately 20 metres OD, the Mettingham enclosure is roughly a third of the way up the valley slope overlooking the River Waveney, and the partially visible rampart encloses a rectangular area of circa 1.5 ha. Although it may of course be larger than this visible fragment, its maximum extent may be somewhat constrained by its location at the mouth of a small tributary valley, placing it probably somewhere between Barnham and Burgh in size. Alternatively, it may only be partially enclosed, as at Burgh. The possible site at Mettingham therefore meets a number of the observed regional criteria and may belong to late Iron Age East Anglian enclosure tradition, but more work is required to determine its date and function.

7. THE ANGLO-SAXON PERIOD

The archaeology of the Anglo-Saxon period is generally less visible on aerial photographs. There is a long history of Anglo-Saxon studies in Suffolk, including the excavation of nationally important, but probably atypical sites such as the Sutton Hoo Barrow cemetery and the settlement at West Stow, the processes of post-Roman settlement change remain poorly understood. These processes are summarised in great detail elsewhere and will not be discussed again here, other than to state that throughout the period, the probably dominant rural tradition of small unenclosed and dispersed settlements has resulted in sites and landscape features particularly difficult to identify by aerial survey (see Hegarty and Newsome 2005; Wade 1999; Hamerow 2002; Newman 1992).

Evidence for Anglo-Saxon activity along the Waveney valley is relatively abundant. This includes both burial and settlement evidence, such as the early burials at Flixton (including a secondary inhumation within the ring ditch FLN 008 and inhumation cemetery possibly focusing on the ring-ditch FLN 010) and the market in Domesday recorded at Beccles, suggesting a well established town (Wade 1999; Scarfe 1999). The wider late Saxon settlement pattern in this area is also hinted at by the occurrence of early Norman churches with round towers along the border with Norfolk (Wade 1999).

However, the possible evidence from this survey is limited to one site, the possible post-built structure BRS 017 in Barsham already briefly discussed above in relation to the Neolithic period (see Figure 4 above). An alternative interpretation of this site is as a long hall of Saxon date. In comparison with the possible long hall at Freston, recorded in a previous survey (Hegarty and Newsome 2005, 23; 65) the character of the Barsham structure differs in a number of ways. Firstly it's significantly smaller; the cropmarks are less clear but even interpreted at its maximum mapped extent the structure is probably no more than eighteen by five metres in size, half that of Freston. However, the southern end of the post-hole alignment is rather unclear and the actual length could be as low as eight to ten metres. Secondly, the post-holes, or potentially post-pits, are on average twice as wide and as far apart at Barsham. The general impression, rightly or not, is of a much more substantial but possibly cruder construction.

The size of the structure does not preclude a Saxon date, indeed it is well within the range of known hall structures at sites including Mucking, Maxey and West Stow (Hamerow 1993; James, Marshall and Millet 1999; Rahtz 1979). It is difficult, however, to suggest a closer date, but at the lower end of the size range described above the structure would be of very similar dimensions to the middle or later Saxon 'halls' excavated at Witton and West Stow (Lawson 1983; Rahtz 1979). The apparent absence of sunken featured buildings (SFBs) may also be an indication of a later date.

However several of the more common structural features associated with hall structures of this period, such as paired central doors, annexes at the ends of the structures or an association with a palisaded enclosure and SFBs are absent or not visible. Although the cropmark evidence is not terribly clear, this may not be surprising; such features are more likely to be visible on larger, high status Halls or palaces, such as Cowdery's Down or Yeavinger and despite the apparent size and spacing of the post-pits, which Rahtz (1979, 81) states might be more suited to major structures which require deep founding, it is clear that this structure is more

akin to a structure of James *et al*'s 'Group One' settlements, i.e. settlements without high status halls. It may be the remains of a farmstead, possibly isolated or once part of a small hamlet. Once again, however, caution must be urged in these interpretations; at Witton the similarly proportioned cropmarks of the Saxon 'five hole site' revealed upon excavation a much more complex structure than anticipated (Lawson 1983, 40, 74).

One final piece of circumstantial evidence must also be considered. The structure lies approximately 450 metres to the east of Barsham's Holy Trinity Church, an isolated structure with a circular tower containing probably pre-conquest material. It is possible that both post-built structure and Church originally belonged to an early or middle-Saxon settlement. However, the middle to late Saxon period is characterised by phases of settlement expansion and shift, what Wade (2000) has called the 'Middle Saxon Shuffle'. Whether or not these cropmarks mark the remains of a late Saxon Thegnly hall or a simple farmstead within the settlement, the church and its associated hall may have become isolated at this time. It is possible the Hall later moved some 700 metres northwards to the site of the moated medieval Barsham Hall (BRS 001) leaving the church isolated, a characteristic feature of the Suffolk Landscape (Martin 1999).

8. MEDIEVAL AND POST MEDIEVAL

In contrast to previous aerial surveys in Suffolk, evidence for the medieval and post-medieval is relatively plentiful with landscape features visible largely as earthworks. The medieval settlement pattern in Suffolk is discussed elsewhere in detail and will not be covered here other than to say that to some extent, the modern settlement pattern, the road network and some field boundaries probably fossilise the medieval and possibly the later Anglo-Saxon pattern (summarised in Hegarty and Newsome 2005, 74-5). It is probably because of this continuity of settlement, if not of population, and the limited cropmark visibility on the heavier Waveney valley soils, that very little evidence for changes in agricultural activity and communications infrastructure was identified during the survey.

The most notable pattern to emerge in this area, however, is that settlement evidence for these periods is relatively plentiful, most particularly in the form of possible moated sites and shrunken settlements or farmsteads.

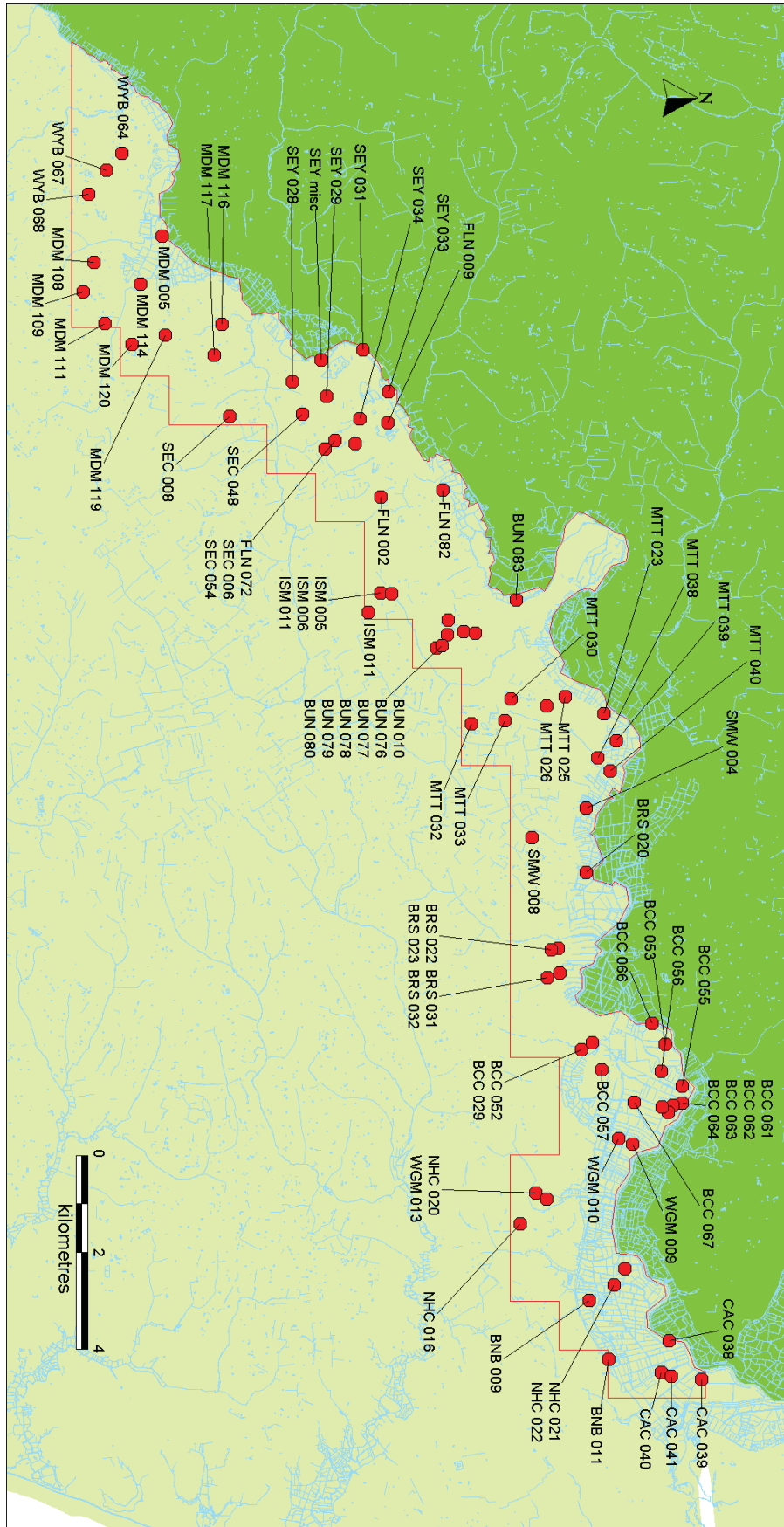


Figure 9: Medieval and post-medieval sites mentioned in the text.

8.1 Agriculture and Subsistence

This section will thematically summarise the evidence for features which have been interpreted as sites or features created or used during agricultural or other subsistence activities. Evidence for possible industrial or other commercial activities is summarised in section 8.5 below. It is acknowledged that a clear line cannot readily be drawn between these two types of activity and this arbitrary division is solely for the purposes of this discussion.

8.1.1 Agriculture

The survey identified a limited number of cropmarks and soilmarks that have been interpreted the remains of medieval and post-medieval field boundary ditches or grubbed up hedgerow banks. Medieval and post-medieval field boundaries can often be identified from their regularity or relationship with extant field boundaries. Post medieval boundaries are also often marked on the First Edition Ordnance Survey map. Unless such features could be confused with much earlier boundaries or add significantly to the understanding of earlier, unrecorded boundaries, such late features were not transcribed or recorded.

However it is often difficult to differentiate medieval and early post-medieval boundaries from much earlier boundaries, such as the potentially Iron Age and Romano-British features described in Sections 6.1 above, and it is possible some have been mis-recorded within the cropmark palimpsest.

Two sets of field boundaries displaying different characteristics but both interpreted as probably originating in the medieval period were identified as in Weybread parish. The first boundary (WYB 067, TM 247807; see Figure 10 A), is curvilinear in form and clearly previously connected with a similarly curvilinear extant boundary to the north. It also echoes the form of a boundary marked on the First Edition Ordnance Survey map of circa 1884 some 160 metres to the east, although by this time it has been superseded by a system of more regularly arranged boundaries.

Four hundred metres to the south-east a second field system demonstrates a similar association with extant and historic field boundaries, but this time it is rectilinear in form (WYB 068, TM252803; Figure 10B). The field system appears to be aligned on Stubbings Lane to the north-east and a relationship with extant boundaries on the north-east of this road is probable. A possible coincidence of the northernmost boundary with the line of a footpath is also revealed upon examination of the First Edition Ordnance Survey map of circa 1884.

In addition to the probable remains of former field systems, two further sites in Mendham parish visible as faint cropmarks, also probably contain elements of settlement boundaries and roads or tracks. MDM 119 contains the location of a number of small enclosures to the North-West of Botwrights Farm (see Figure 10D; TM281819). When viewed overlain onto the First Edition Ordnance Survey map, the relationship of the cropmark features with former field boundaries and land parcels becomes clear. The densely packed boundaries subdivide the current property into a number of rectilinear enclosures, possibly the former locations of separate farms, perhaps indicating the location of a former hamlet, and the role of the most northern linear feature as a continuation of the extant trackway becomes more probable.

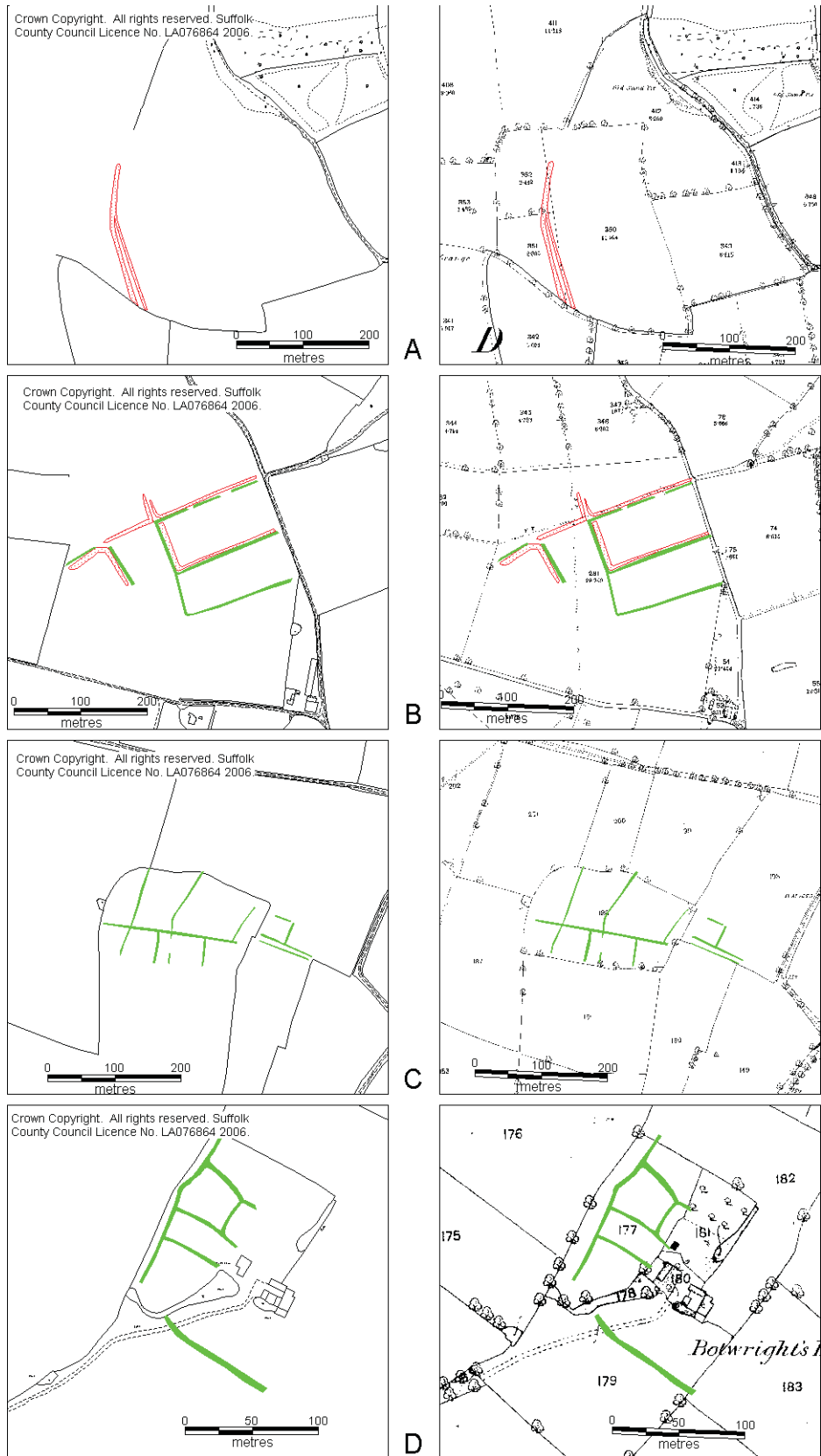


Figure 10: Possible evidence for agricultural land division in from the medieval to post-medieval periods. A: WYB 067, TM 247807; B: WYB 068, TM252803; C: MDM 118, TM289819 ;D MDM 119, TM281818.

Similar boundaries are visible approximately 600 metres to the east. Recorded as MDM 118 (TM289819), a relationship with an extant boundary is visible on the current base map but further associations again become apparent on the First Edition map (Figure 10 C). A probable trackway approaches the boundaries from the east, and the closely spaced and regular nature of the sub-divisions to the south of the field may indicate the location of former tofts, possibly again an abandoned hamlet or farm.

More direct evidence of agricultural practices has been recorded in Mettingham parish (MTT 025, TM355901; see Figure 11). Roughly parallel narrow negative features are visible as cropmarks lodging in cereal crops on a north-west facing slope overlooking Benstead Marshes and the Waveney River. Too irregular and too closely spaced to be the remains of strip field cultivation, these have been interpreted as a form of contour ploughing of possibly medieval date. The identification of a rectangular platform as a cropmark to the south of the field may support the suggestion that the cultivation was associated with a building in this location.

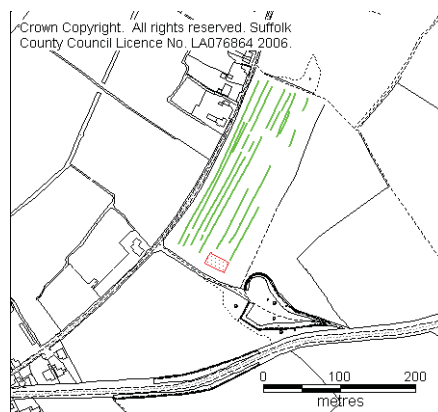


Figure 11: Possible strip cultivation in Mettingham parish (MTT 025, TM355901).

8.2 Settlement

The dominant settlement pattern of dispersed farmsteads may preserve much evidence of medieval land-use, but settlement evidence for these periods is visible both as cropmark and earthworks, although the latter is more common. Most commonly this takes the form of ditched field boundaries, hollow-ways or tofts visible on 1940s aerial photographs before its destruction by later 20th century agricultural activity. It is often directly associated with or adjacent to extant settlements, most often farms. A few more ambiguous examples have been identified and will be summarised first.

9.2.1 Enclosure and enclosures

Approximately 300 metres to the south-east of Shadowbarn Farm, St Margaret Ilketshall parish, a roughly rectilinear enclosure is visible as a cropmark (ISM 011, TM338860; see Figure 12). Reminiscent of much earlier, Iron Age or Roman period enclosures in Suffolk (c.f. Hegarty and Newsome 2005, 36) this has nonetheless been interpreted as being probably of medieval date. This interpretation is based on similarities in alignment to the surrounding field boundaries, both extant and those visible on the first edition ordnance survey map and as cropmarks, and similarity in appearance to smaller rectilinear enclosures to the north-west of Shadowbarn Farm

which are either directly linked to post-medieval drains or closely aligned upon post-medieval field boundaries (ISM 006, TM334863; ISM 007, TM334865). The enclosure is relatively complex in form, showing evidence for internal sub-division into a number of enclosures, possibly for stock control, and some indication of internal features. Nonetheless, it may be earlier in date and predate the field system, providing evidence for continuity of settlement in this location, potentially as an earlier phase of Shadowbarn Farm to the north-west.



Figure 12: Possible enclosed medieval settlement ISM 011 (TM338860).

The identification of a trapezoidal ditch and bank defined enclosure on Beccles Marshes raises a number of possibilities (BCC 053, TM427921; see Figure 13). Prior to reclamation this area constituted Beccles Common and this enclosure may therefore have also been constructed for stock control purposes. Alternatively it might have enclosed a settlement site encroaching onto the Commons or have been constructed during the pioneering phases of reclamation, a possibility perhaps supported by its location within the polygonal area enclosed by parallel curvilinear drainage ditches on Beccles Marshes, visible on the first Edition map and reminiscent of Rippon's oval enclosures, indicative of early wetland enclosure (Rippon 2000). This enclosure was partly destroyed by modern realignment of the drainage network and subsequently levelled by modern agricultural practices. Alternatively it may be an internal bank, possibly for protection from flooding, of a moated site, comparable to a site in Mettingham parish, described below (MTT 023; see section 9.24).

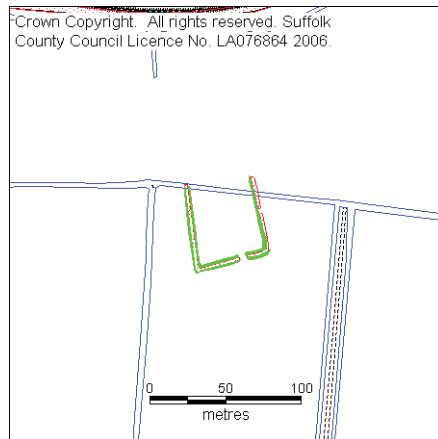


Figure 13: Possible enclosed medieval settlement BCC 053 (TM427921).

8.2.2 Crofts and Tofts

A number of possible settlement sites have been identified through the interpretation of crofts as cropmarks and earthworks. These have been identified in isolation and in association with extant settlements. The most convincing of the isolated sites, MTT 030 (TM 356889), SEC 006 (TM305852) and MDM 114 (TM271814) are illustrated in Figure 14.



Figure 14: Possible tofts. A: MTT 030 (TM 356889); B: SEC 006 (TM305852); C: SEC 008 (TM 298832).

MTT 030 is interpreted from newly identified linear cropmarks located approximately 400 metres to the north of the medieval castle or fortified manor house of Mettingham Castle (MTT 003). The possible crofts abut the road called Annis Hill and are probably located to the north-west of Mettingham Green as marked on Hodskinsons map of 1783.

Three possible crofts or tofts were previously noted on the HER roughly 700 metres to the south of Flixton Hall (SEC 006, TM305851; see Figure 14B). The Unit for Landscape Modelling (ULM, formerly CUCAP) photographs referenced in this record were not available to this survey but a single rectilinear ditch defined enclosure was identified as a cropmark on 1973 Ordnance Survey images in this location. It is probable that this feature is part of the same ditch defined feature enclosure complex previously noted, possibly tofts cleared during the emparkment of Flixton Hall. However, a reassessment of the ULM evidence is required to be certain. An alternative interpretation as a small moated site must be considered, despite the narrow width of the ditch (circa 2.5 metres). SEC 006 is also considered below in section 8.2.4 with several other possible moated sites new to the HER.

Several possible toft boundaries are visible as cropmarks in Mendham parish at TM271814, to the north of the village of Withersdale Street, abutting Mendham Road (see Figure 14C). Recorded as MDM 114, the broader cropmarks are likely to be forming over former boundaries defined by drains, extant examples of which can be seen to the south on the fringes on Mendham Marshes at Withersdale Street and immediately to the north on the west side of Withersdale Road. The narrower of the features may be the remains of grubbed up hedgerows or other such possible subdivisions within the plots. It may be that these boundaries mark a former, greater extent of the village of Withersdale Street (*Wethersdale* or *Wethersdale Cross* on Hodskinsons map). It is tempting to identify the fortunes of Withersdale, and a possible reduction in size, with those of Mendham Priory approximately 800 metres to the north-west (MDM 005, TM261818). Whether or not this is the case, the possible crofts coincide with a recorded find spot of medieval pottery at TM272814 (MDM 011, largely of 15th century date) and cropmark evidence for small scale extraction activity, probably for peat, both suggestive of settlement or at least industrial activity. It is also of interest to note the course of a former stream or creek crossing this site as a cropmark, its regulated and redirected course passing to the south of the possible peat cuttings. This may indicate that the creation of the crofts was in part a planned process.

8.2.3 Shrunken Settlements

Several sites have been identified that may contain evidence of settlements which have become reduced in size at some point during the medieval or post-medieval period. Most of this evidence has been identified in association with extant settlements, most commonly isolated farms that are so characteristic of Suffolk's rural landscape and dispersed settlement pattern (see section 2.2). The three examples illustrated and described here have therefore been interpreted as probable examples of shrunken hamlets rather than shrunken or deserted villages.

Earthworks surrounding the farm known as Thorpe Hall have been recorded as MDM 109 (TM 271802; see Figure 15). The current Hall dates from the 16th and 17th centuries and probably corresponds with buildings marked in this area on Hodskinsons map of 1783. However, the earthwork evidence for ditched field

boundaries, possible croft enclosures and a possible moat may indicate an earlier phase of settlement predating the current Hall. This may be supported by finds of 14th to 15th century pottery in this area (MDM 042, MDM 078). The presence of a possible moated site may indicate a settlement of some status, possibly a manorial site. However, it is equally if not more likely to be the remains of prosperous farm within a small hamlet; moated sites are numerous in this area, three further examples are already known within a one kilometre radius of this site (MDM 001, MDM 002 & FSF 009; Wilson, 1985). Nonetheless, the construction of Thorpe Hall may indicate a shift of high-status settlement focus from the possible moated site to its current location as the hamlet contracted, possibly utilising an extant holloway or track as the approach road or drive to the new house. The moated sites recorded during this survey are summarised in more detail in section 8.2.

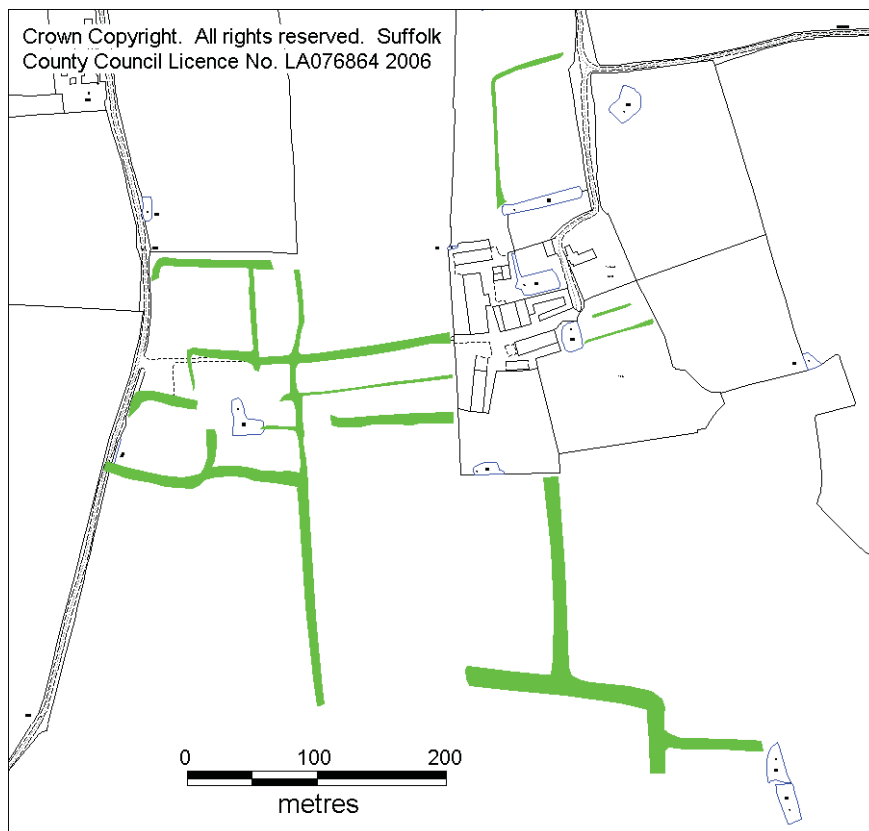


Figure 15: Possible shrunken medieval settlement MDM 109 (TM 271802).

Similarly, Hodskinson's map indicates the presence of a hamlet to the northern end of Greshaw Green, marked as Grazer Green on Hodskinson's 1783 map, in St Cross, South Elmham parish. The possibility of visible tofts in this location had previously been recorded as SEC 008, following their identification by J.K. St Joseph before 1972. However, as with SEC 006, the ULM images of this site were not available to the survey but examination of 1940s verticals once again added valuable new detail to this record (see Figure 14C above). In this instance this comprises evidence for several field boundaries and a convincing moated site to the immediate east of Home Farm. The significance of the possible moat is discussed below in 9.2.4. Hodskinson's map, drawn up just before a phase of parliamentary enclosure, indicates up to seven possible farms surrounding Grazer Green in 1783. By the time of the first edition Ordnance Survey map of circa 1884, and following enclosure, this has reduced to three or possibly four dwellings. Two now survive.

Of further interest, however, is the possible earthwork evidence for encroachment onto the former green indicated by linear earthworks between dwellings and road which bear no relation to the boundaries marked on the First Edition Map. These earthworks include the possible moat.

Roughly 500 metres to the south of Bungay, at TM 341878, Manor Farm is the focus for evidence of the possible shrinkage of a more extensive hamlet (see Figure 16). Visible on aerial photographs of the 1940s to 1960s as both earthworks and cropmarks, the complex arrangement of enclosures, tracks, holloways, closes and possible house platforms is summarised in six separate HER records, BUN 010 and BUN 076-BUN 080. Although numerous ponds are present within this complex, no moat is visible within the settlement, although a three sided square pond complex at Three Ash Farm (TM 341876) may be the remains of one. However it is acknowledged that the identification of manorial sites, or indeed any central focus within deserted dispersed settlements is not always possible (Everson, Taylor and Dunn 1991, 41; Lewis, Mitchell-Fox and Dyer 1997, 129). The possible reasons for this are complex and varied but in this instance it is possible that Manor Farmhouse and its associated outbuildings are built over site of an earlier manorial complex, thereby obscuring it from view. Indeed, the construction of Manor Farmhouse, dated from an inscription found on a roof timber at probably 1675, falls within the period when abandonment or remodelling of medieval moated manor sites to follow the latest fashions was at its height (Wilson 1985, 55).

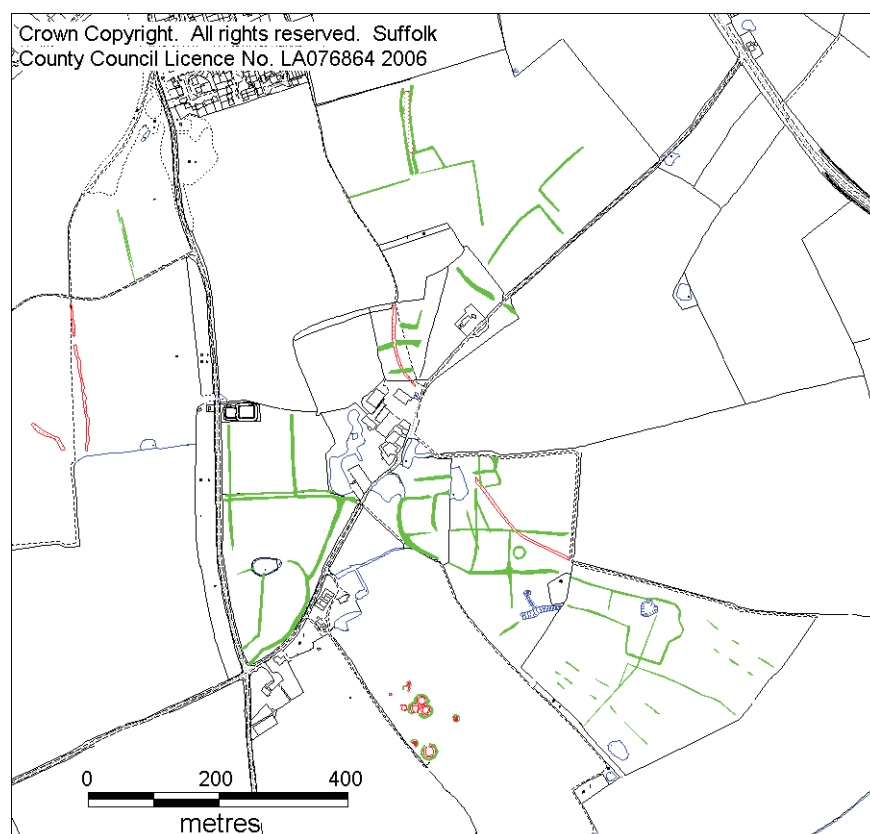


Figure 16: Possible shrunken medieval settlement in the environs of Manor Farm Bungay, (TM 341878; the circular features to the south are part of a WWII Searchlight Battery).

Deserted hamlets are difficult to interpret and it is probable that this transcribed evidence data includes more than one phase of settlement activity. This is most apparent to the south-east of the complex where cropmarks reveal an irregularly

shaped enclosure possibly overlain by more regular and probably later field boundaries. The majority of the settlement is defined by a mix of curvilinear and regular boundaries. The form of those to the west, (BUN 076) may be defined by, or potentially have influenced, the intersection of two roads, St Margaret's Road to the west and an unnamed route to the north-east. The cropmarks to the north of Manor Farm may simply be the remains of small fields or alternatively, evidence for the desertion of the more regular form of settlement often described as 'interrupted row' or 'attenuated row', wherein small plots of land containing a house and plot of land about a road or track (Dyer 1990, 111; Lewis, Mitchell-Fox and Dyer 1997, 129-130). In contrast, the land to the east of Manor Farm demonstrates a possible grid-like organisation. Such varied earthwork evidence may be due to the piecemeal growth of the settlement, possibly in response to population growth pressures (Muir 2000, 181). Hodskinson's Map of 1783, surveyed immediately before large-scale enclosure, shows a small settlement in this location, to the immediate west of '*Bungay Upland Gr*', presumably Bungay Upland Green. The irregular form of the earthworks of the settlement may therefore be due to phases of piecemeal encroachment onto the green, and its subsequent contraction following parliamentary enclosure.

8.2.4 Moated Sites.

Suffolk has one of the highest numbers of moated sites of any county in England. Martin (1999) quotes the figure at 850 but the total currently on the HER is closer to 900. As a class of monument they have a long history of research, demonstrated by the formation of the Moated Sites Research Group in 1971 (amalgamated with the Medieval Village Research Group in 1986 to form the Medieval Settlement Research Group).

In this period a number of authorities have proposed criteria to distinguish moated sites from other ditched or enclosed sites, of which a great variety can and have been mistaken for moats, including fishponds, civil war emplacements and hollow-ways (Taylor 1978, 5-7). This report is not the place for a detailed summary of the history and current position of moated site studie, but for a good overview of the key points and some comparative discussion, see Taylor (1978) and Le Patourel and Roberts (1978), both in Aberg (Ed. 1978), Taylor (1972), Everson *et al* (1991, 48-50) and Wilson (1985). Wilson (1985, 7) lists the following key moated site characteristics which provide good, but not exclusive general criteria:

- A broad, flat-bottomed or U-shaped ditch, 4-12 metres wide.
- Ditches most commonly being square or rectangular in shape, circular sites being less common.
- Most ditches intended to hold water.
- A central platform or island often containing a structure, often a manor house; any currently present buildings usually being later in date.

Other important but variable characteristics include the area enclosed by the ditch and the social and topographical situation of the moat, which range from a few square metres to 5 hectares, from the centre of settlements to isolation and from level plateaux to valley floors and all points in-between (Wilson 1985, 9; Taylor 1972, 238).

Despite Wilson's final criteria, the date and purpose of moated sites also vary. Moats were constructed from the later 12th to the 16th century with a peak in construction in the 13th (Martin 1999). Although manorial sites are one of the more commonly known classes of site to be moated, this does not necessarily equate with a purely defensive function or high status role. This is a broad subject but in addition to defence, a range of possible reasons for enclosing a site within a broad ditch have been suggested. These include drainage, protection from wild animals, use as fishponds, as a source of freshwater and as an indicator of prestige (Wilson 1985, 17-22). It is unlikely that any one of these reasons ever provided the impetus for construction, but it is likely that the first moats 'emerged as a fashion amongst the aristocratic elements in society' (Le Patourel and Roberts 1978, 48) and then diffused amongst other elements, driven by a desire to emulate and facilitated by economic growth (Jean Le Patourel and Roberts 1978, 48-49). Indeed, Le Patourel and Roberts have suggested that the high number of moats found in possible 'woodland' areas - such as the claylands of Suffolk - may indicate that a high income, and not necessarily social status, was a pre-requisite for moat construction, as might be provided by mixed farming, and indicative of a kind of 'proto-capitalism' (Le Patourel and Roberts 1978, 50).

The sites interpreted as possible moats during this survey are illustrated in Figure 17. From the variation in topographic locations, size and form it is clear they are not representative of a single type of settlement or monument, and could therefore represent a range of site types, from 12th-14th century homestead moats to 16th century garden features.

On the basis of size and ditch width it is probable that some are not true moats. For instance, SEC 006 (Figure 17G), described above as a possible example of an isolated croft settlement, is an isolated site only 0.12 ha in area (1231 square metres) and enclosed by a ditch 2.5 metres wide. The short right-angled length of ditch MDM 117 is slightly wider, between 2 and 4 metres wide but is connected to and probably part of the fragmentary moat complex MDM 004. At 0.1 ha it may have housed ancillary buildings such as barns, workshops or even a garden. MTT 026 (Figure 17B) is even smaller in area at 0.01 ha (145 square metres) with a ditch less than 2.5 metres in width. However, MTT 026 displays a characteristic recurrent amongst many of the moated sites illustrated here, a possible association with a 17th century house. Just as changes in fashion from the 13th century probably encouraged the construction of moats, further changes in the 16th and 17th centuries also probably lead to their abandonment (Wilson 1985, 55; La Patourel and Roberts 1978, 51). Again, in emulation of the newly built manor houses, smaller moated settlements probably shifted their focus to new, more comfortable houses, often on the same or neighbouring sites. It is therefore possible that the mid 17th century Vicarage Farmhouse in Mettingham is a direct successor of MTT 026.

Of the nine illustrated moated sites only two, H & I (MDM 109, SEC 008), are located within a possible settlement. As described above, the moat MDM 109 is within a possible shrunken settlement and very close to the late 16th or early 17th century house Thorpe Hall. Likewise, SEC 008 is adjacent to the late 16th or early 17th century Home Farmhouse which may in fact be within the larger of two linked moats. Whatever other reasons were involved in the reduction of these settlements, it is probable that changing fashions caused the high status dwellings to shift from within the moats to the new houses in the later 16th century. However, even with moat internal areas of approximately 0.34 and 0.23 ha, just above the Suffolk

average of 0.2ha (Martin 1999), it is the opinion of the author that the small scale of the associated settlements makes roles as enclosed farms in former hamlet are more likely than manor houses (see section 9.2.3. for a further description of this site). It is interesting to note that these two sites are similar to potential moated sites recently recorded on the Norfolk side of the River Waveney, in Hedenham parish (MNF10630) and Thwaite parish (44828-MNF50288), probably part of the same tradition of dispersed wealthy moated farmsteads described above (Albone 2006, Pers. Comms.).



Figure 17a: Possible moated settlements. A: MDM 116 (TM279830); B: MTT 026 (TM357857); C: MDM 117 (TM285892); D: MDM 120 (TM283812); E: SEY 033 (TM293865); F: MTT 023 (TM359909).



Figure 17b: Possible moated settlements continued. G: SEC 006 (TM305851); H: MDM109 (TM270802); I: SEC 008 (TM298832).

MDM 120 (Figure 17D) does not relate to either a surviving post-medieval house or any settlement marked on Hodsckinson's 1783 map. At 120 by 60 metres in size, the surviving earthworks may simply be the remains of a grubbed up medieval field boundary. Mitigating for an interpretation as a moat is the broadness of the ditch which approaches 6 metres and in places can still be seen to hold water on the available prints. The presence of an even wider and longer possible moat to the north-east (MDM 037, TM 285813), which is associated with find spots of 14th to 15th century pottery (MDM 069, TM 284812), may also bolster this possibility.

A series of earthworks including a possible moat with an internal bank had been previously identified on the SMR, from ULM infra red linescan images, and recorded as MTT 009 (TM 359909), roughly 95 metres to the north-west of the 16th to 17th century dwelling known as Valley House. These images were not available for the aerial survey but a bank defined rectilinear enclosure of circa 0.06ha (634 square metres) was identified in the same area from early 1950s RAF vertical photographs (see Figure 17F). Although almost certainly relating to the same feature it has been recorded separately as MTT 023. Internal banks are commonly features on many moated sites and have been interpreted variously as evidence for moat clearance, foundations for the erection of enclosing walls or fences, or simply the accumulation of soil over collapsed walls (Taylor 1978, 10; Wilson 1985, 51). In consideration of

the low-lying situation of MTT 023, well below the 5 metre contour and in the reclaimed area of the Waveney valley, a simple interpretation as a flood defence is suggested here.

In a similar low lying situation in St Mary South Elmham parish, ditches up to four metres wide define the south-east and south-west sides of a rectangular enclosure and a possible causeway approaching from the south, recorded as SEY 033 (TM 293865; see Figure 17E). The north-east side is defined by a drainage ditch of probable post-medieval date and the north-west by the River Waveney. There are no visible structures on or near to this possible moat and the ditches themselves are only partially marked on the current and First Edition Ordnance Survey maps, where they have continued (or been adapted to) use as drains. It is possible that this rectilinear enclosure was created by chance during the reclamation and drainage of the river valley, but this seems unlikely. A few structures marked on Hodskinson's map in this general area raise the possibility that this site is the location of a deserted settlement, possibly a small former hamlet or farm. A further possibility is raised by the name of the small island to the north of the moat; Mill Holm. Water mills were common in Suffolk throughout the medieval and post-medieval period, evolving from milling corn to increased use in the cloth industry by the 16th century (Dolman 1999). In addition, specialist structures belonging to large estates were often enclosed within their own moat (La Patourel and Roberts 1978, 48). It is possible therefore that the naturally occurring bifurcation in the River Waveney around Mill Holm presented an easily regulated watercourse and an ideal location for a water mill. However, the absence of such a mill on Hodskinson's map, when several are indicated in similar situations to the east and west, possibly supports the interpretation that of a mill predating the 18th century. Any structures to remain on this site may have been removed as an eyesore in the 1840s, with the landscaping of Flixton Hall Park (Williamson 2000, 133; see section 9.7).

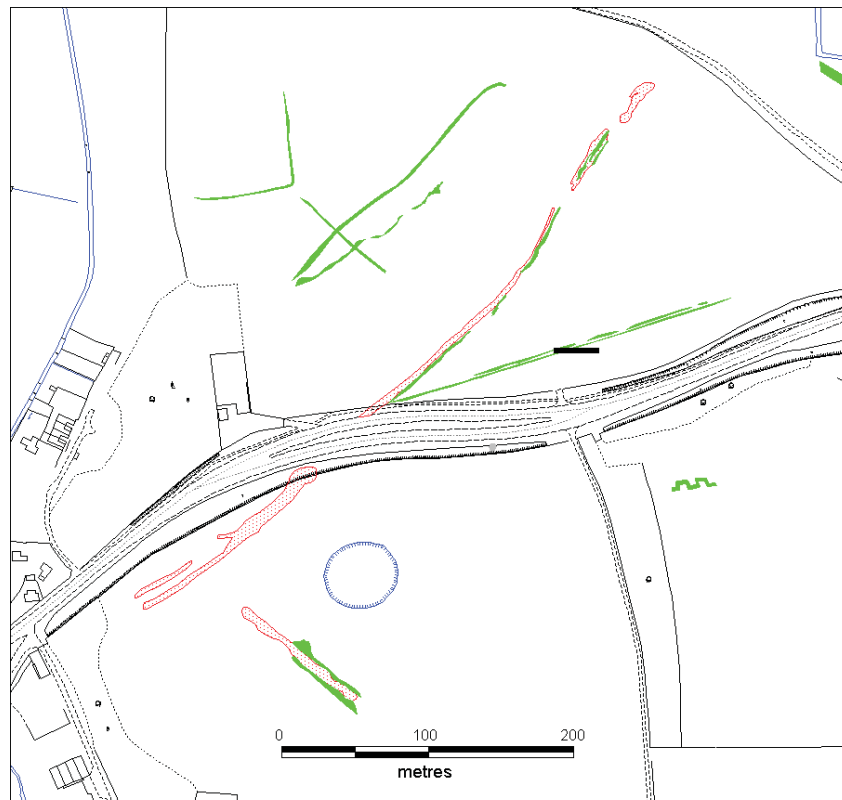
8.3 Communications

8.3.1 Roads

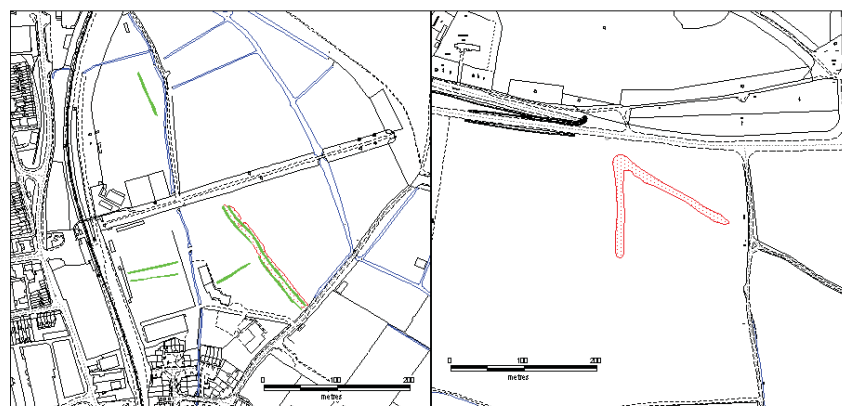
Three features have been identified as the probable remains of roads potentially dating from the medieval period, although further investigation is required to confirm this interpretation. The first is visible as a linear cropmark over 500 metres in length, the form of the cropmark supporting an interpretation of both cut and compressed subsurface features (BRS 023, TM 408898; see Figure 18A). More specifically, the evidence suggests the presence of a compressed or metalled surface flanked by ditches. This possible road is cut by the current line of Bungay Road where it follows a straightened route in a cutting ascending Barsham Hill. It is possible that the cropmark feature follows an earlier route up Barsham Hill, although its ultimate destination in Barsham Marshes is unclear.

The evidence for the second possible road, (BCC 029 & BCC 052, TM 4285 9046; see Figure 18B), is similar to that described above. Parallel ditches, probably for drainage purposes, can be seen flanking a central compressed or metalled surface to the east of Beccles. As indicated by the numerous extant drainage ditches in this area, effective drainage would be vital for any route in this low lying area of Beccles Marshes. This route does not obviously correspond with any road marked on the historic maps available to the survey, but may indicate the line of the pre-enclosure Common edge to the east of Beccles, as shown on Hodskinson's map of 1783.

The third route to be described has been identified as the remains of a road marked on Hodskinson's 1783 map (NHC 016, TM 46376 89170; see Figure 18C). The north-west to south-east orientated portion of the cropmark is clearly a continuation of a road to the east of Brook Lane, although in contrast to the two examples above, it is visible only as a compressed surface with no evidence for flanking drainage ditches. It may be that it was intended as a direct route to St Botolph's Church. The north-south section of the cropmark is possibly a continuation of a field boundary marked on the First Edition Ordnance Survey map of circa 1884. Potentially the extensive enclosure in this parish which followed the draughting of Hodskinson's map removed the leg of the road to the west of Brook Lane (Dymond 1999). Archaeological evidence of this route may have been partly destroyed by the later excavation of a Sand pit in this area and the modern widening of Bungay Road.



A



B

C

Figure 18: Possible roads identified during the survey; A: BRS 023 (TM 408898); B: BCC 029 & BCC 052 (TM428904); C: NHC 016 (TM463891).

8.3.2 Causeways:

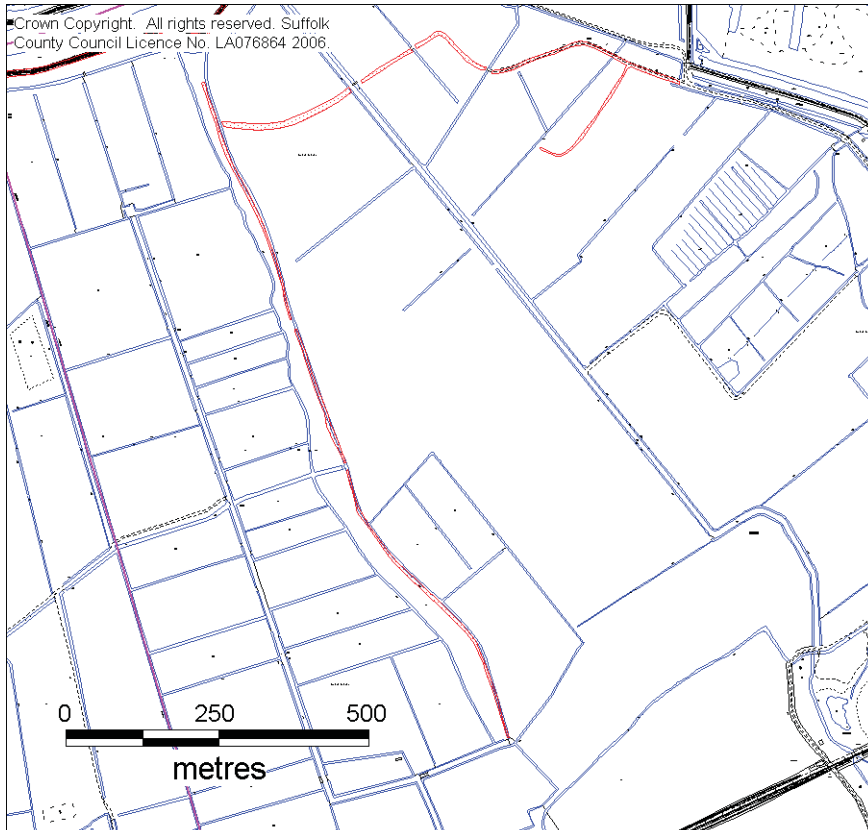
Numerous earthwork features within or adjacent to the drained and reclaimed area of the project area have been interpreted as causeways, defined as routes raised above low, wet or uneven ground. A selection of these is illustrated in Figure 19.

The newly recorded examples can be roughly divided into relatively short and simple routes, and longer more complex and irregular routes. The former are exemplified by those in Figure 19 A,C and E, the latter in Figure 19 B,D,F and H. It is probable that most of the shorter routes were constructed in the post-reclamation period for access to specific areas of the now enclosed marshes as many lead directly from extant farms, although it is possible some are adaptations or fragmentary remains of older, more extensive or complex paths, as may be the case in Figure 19G. By and large however, older routes that predate enclosure are probably represented by the more irregular routes. Some appear to have been superseded, such as in Figure 19B and F, whilst others remained in use and were formalised by characteristic flanking drains and bridges over drains, remaining visible as irregular components within otherwise regular patterns of drains (see Figure 19D, H and possibly G). A small proportion was probably taken into early phases of enclosure but subsequently fell out of use as can be seen in the southern area of Figure 19D.

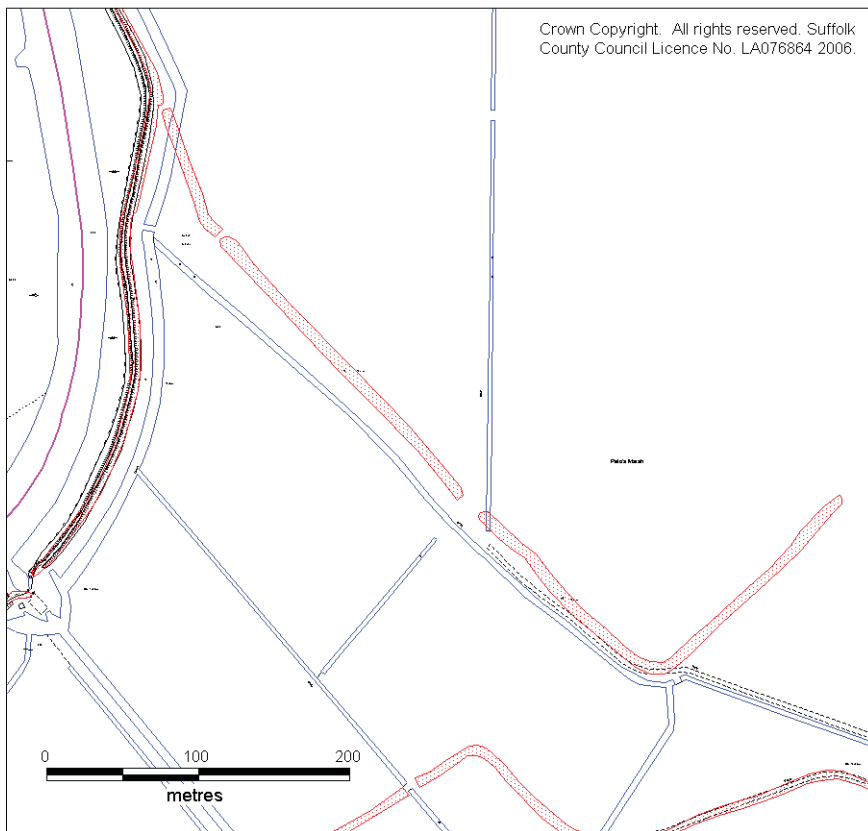
The drainage and enclosure of former common marshland was probably a piecemeal and gradual process, and the evidence for this is examined in more detail below (see section 8.4). A result of this is the regular supplanting of flood defences as progressive reclamation proceeded. It is likely that some of these now-relict earthworks were also exploited as convenient routes across the marshland (see Figure 19b)



Figure 19a: Earthwork causeways were recorded throughout the survey area.



G



H

Figure 19b: Extensive earthwork causeways, possible relict flood defences.

8.4 Enclosure and Reclamation

The process of enclosure is associated with a range of social, economic and technological factors too complex to be summarised here. The broad causes and landscape effects of enclosure are succinctly described in detail by Williamson (2000a) and summarised with specific reference to the Suffolk landscape by Dymond, (1999). However, in general the process can be defined as: 'the creation of hedged (or walled) fields on land which had previously been open: either as large arable fields or as some form of common land or 'waste' such as greens, heaths, moors, fens and marshes.' (Dymond 1999, 104).

In a previous aerial survey, Hegarty and Newsome (2005) confirmed Dymond's (1999) statement that relatively little 18th and 19th Parliamentary enclosure occurred in Suffolk's cropmark rich coastal zone. In contrast, the limited cropmark evidence of agricultural reorganisation within the current project area belies a surprisingly high level of parliamentary enclosure. Dymond (1999) states that in the parishes of Worlingham, Ellough and North Cove nearly 4000 acres were enclosed and in Barnby and Mutford the figure was 2529 acres. However, it is probable that a significant proportion of this area derived from the reclamation of the extensive commons marshland, as marked on Hodskinson's map of 1783. For instance, the combined area of reclaimed land in Worlingham and North Cove parishes is over 1000 acres whilst that in Barnby parish is nearly 600 (Ellough and Mutford both fall outside the project area).

Recent research on more extensive coastal and estuarine wetlands elsewhere in Britain has suggested episodes of reclamation dating from as early as the Roman period, but that the character of the modern reclaimed landscape very much develops from later and more extensive medieval reclamation (Rippon 2000a and b). Although there is tantalising evidence for Iron Age or Roman exploitation of the marshes (see section 6 above) the evidence from this survey does not indicate that such large-scale early reclamation and settlement occurred on the Waveney marshland. There is, however, indication that more localised medieval drainage may have occurred in the vicinity of St Mary's Cluniac Priory in Mendham (MDM 005, TM 261818; see Figure 20). Monastic impetus and influence is often claimed to be of great importance in large scale early reclamation and agricultural improvements and it undoubtedly was a significant factor for the holdings of some larger monastic houses, such as Glastonbury, Athelney and Muchelney in Somerset and Peterborough, Ramsey and Ely in the Fens (Aston 2000, 136; Rippon 2000). However Rippon stresses that in many areas, including parts of East Anglia, the financial benefits of mixed agriculture, the grazing value of rough marsh and organisational complications of multiple ownership made reclamation and embankment unattractive (Rippon 2000, 238). He also stresses a number of cases where monastic landlords simply encouraged their tenants to reclaim marshland.

The cropmarks of a number of channels, which do not relate to the extant pattern of post-medieval drains, are visible crossing the site of Mendham Priory. Most are quite irregular in form and may be direct evidence for the medieval monastic drainage and reclamation of the site, similar to those recorded on the coast at Old Leiston Abbey (LCS 002, TM472660). No evidence for wider monastic influence in the reclamation of this area can be seen but it is possible that the drain defined croft-like land parcels in the neighbouring village of Withersdale Street originated with the land management of Mendham Priory (see section 8.2 above). Three noticeably broader and more regular ditches could be part of the post-medieval phase of

occupation, possibly garden features such as ornamental canals. A possible 'moat' to the north-east of the Priory was plotted during Horne's transcription of this site, and may be indicated by the 'L' shaped cropmark visible in Figure 20, (Horne 1977, 17), but the full extent of this feature was not identified during the survey.

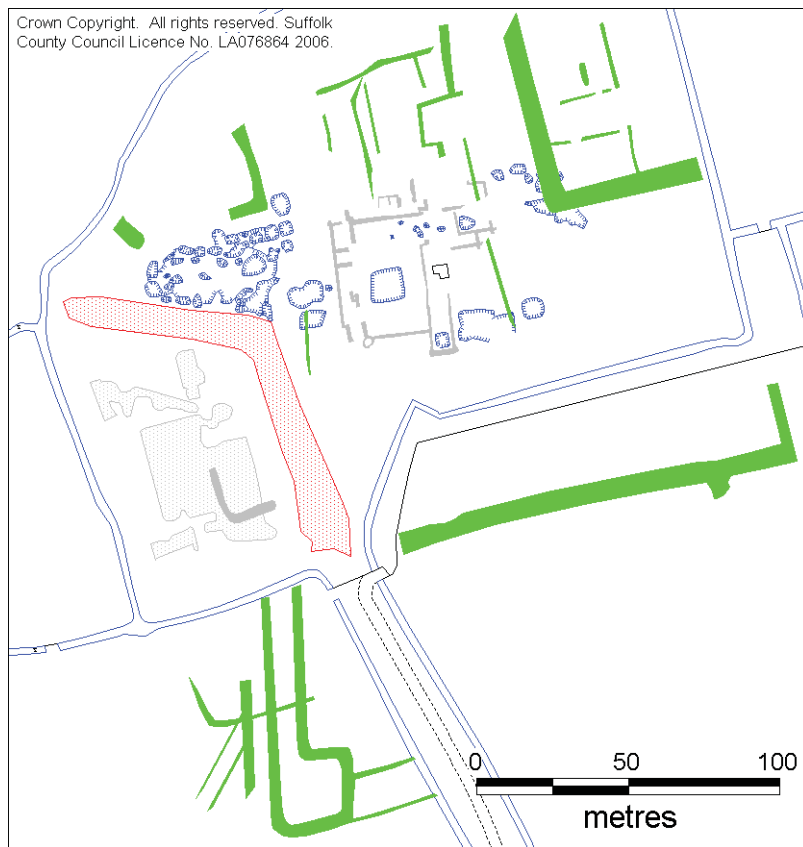


Figure 20: St Mary's Cluniac Priory in Mendham, MDM 005 (TM 261818)

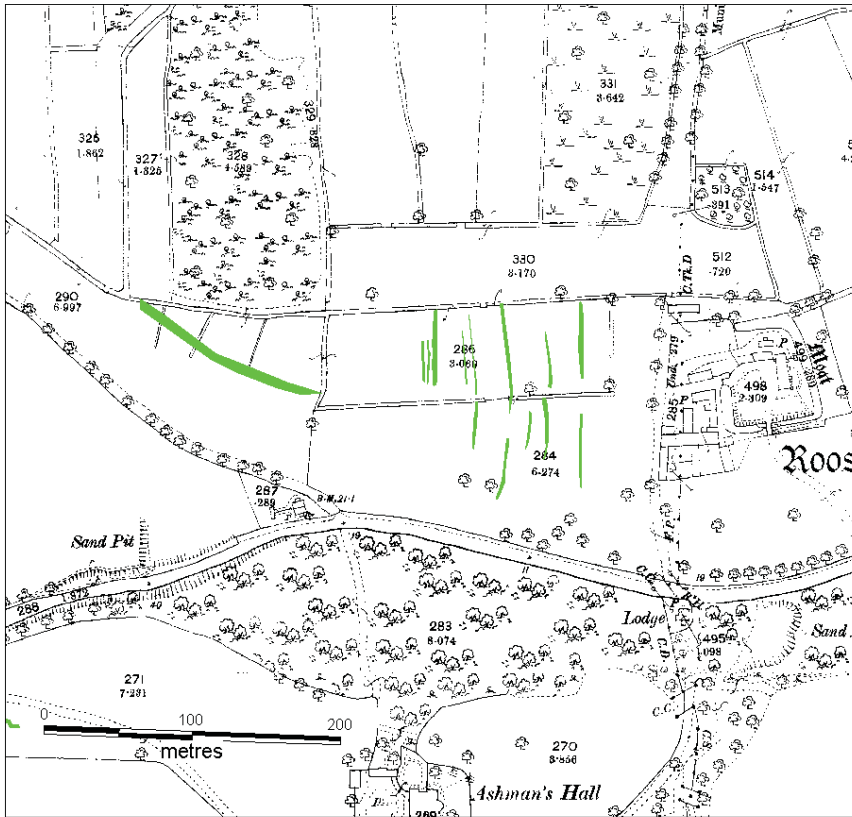
The majority of the evidence for reclamation within the project area is undoubtedly post-medieval in date. As noted on the coast, probably the most extensive individual monuments to be recorded are the flood defence banks, some in excess of two kilometres long (for example BCC 066, CAC 038). As many of these features survive and continue to fulfil their original function, their value as monuments to an important process of landscape change has often been overlooked. However, consideration of relict flood defence banks in conjunction with the extant earthworks can shed valuable light on the nature of post-medieval reclamation. Very often the location of relict flood defence banks coincides with changes in the character of the extant drainage systems, and often the path of a parish boundary, indicating that the reclamation sometimes occurred in distinct phases and at quite a large scale. Other examples show more subtle, small scale or irregular changes, as with NHC 021(TM 473913), BCC 063 (TM 440921) and BRS 020 (TM 392906), which are indicative of a more gradual, piecemeal process, possibly initiated by an individual or small group.

Evidence for post-medieval drainage was recorded and transcribed only when the visible features were not marked on the first edition Ordnance Survey map or added potentially significant information to our understanding of the evolution reclamation process. Four examples are illustrated in Figure 21. Figure 21A (BRS 031, TM 413900) and B (CAC 041, TM 495923) are potentially the earliest drainage features to be recorded in this aerial survey. The curvilinear drains to the west of Roos Hall

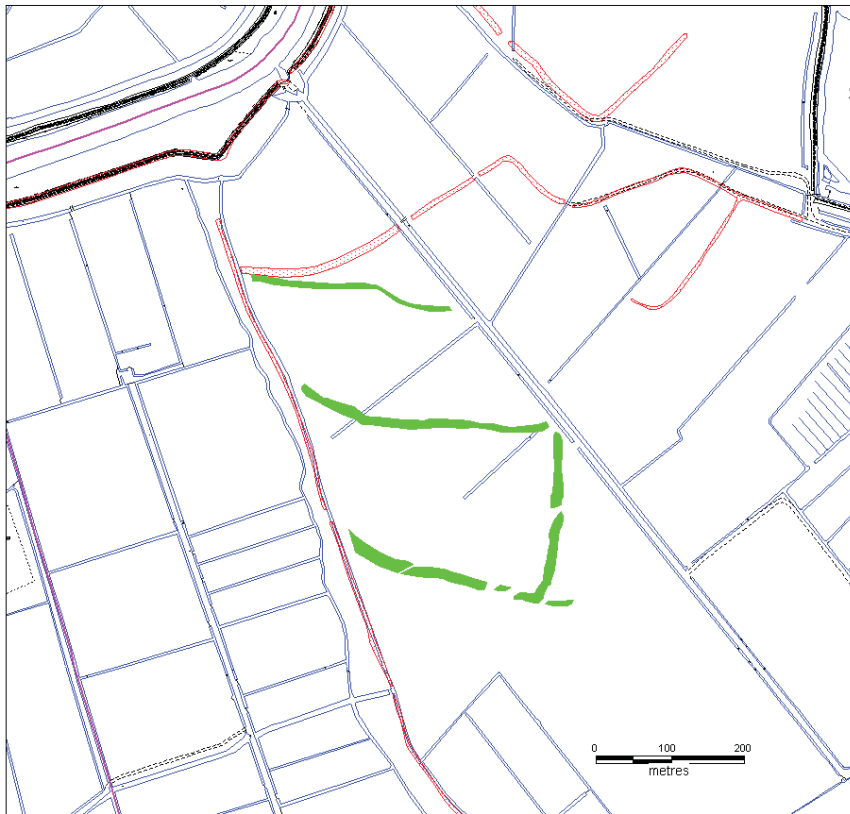
in Barsham parish (Figure 21A), are clearly associated with the elements of the surrounding post-medieval drainage system, shown here on the First Edition Ordnance Survey map for clarity, and may be post-medieval in date. However their narrow spacing and irregular form is not typical of this feature type and may indicate an earlier origin possibly associated with the medieval water-management of Roos Hall Moat.

The curvilinear features illustrated in Figure 21B morphologically have more in common with the relict flood defence banks and tracks in this area than the regular and straight post-medieval drains, both extant and visible on the First Edition Ordnance Survey map. Again, they may therefore be the remains of an early phase of reclamation which was carried out between 1783, the date of Hodskinson's map, and the mid 19th century, the date of the First Edition Ordnance Survey map.

Figures 21C and D are interesting in that although they show the cropmarks of drains clearly part of the overall planned drainage system, they illustrate an element of evolution and refinement in its execution. In Figure 21C we can see how the relatively irregularly appearing extant drainage system has remodelled and evolved from an earlier, more linear system. The relict drains in Figure 21D, in contrast, are clearly part of a planned whole, which has been reduced in scale as reclamation was successful.

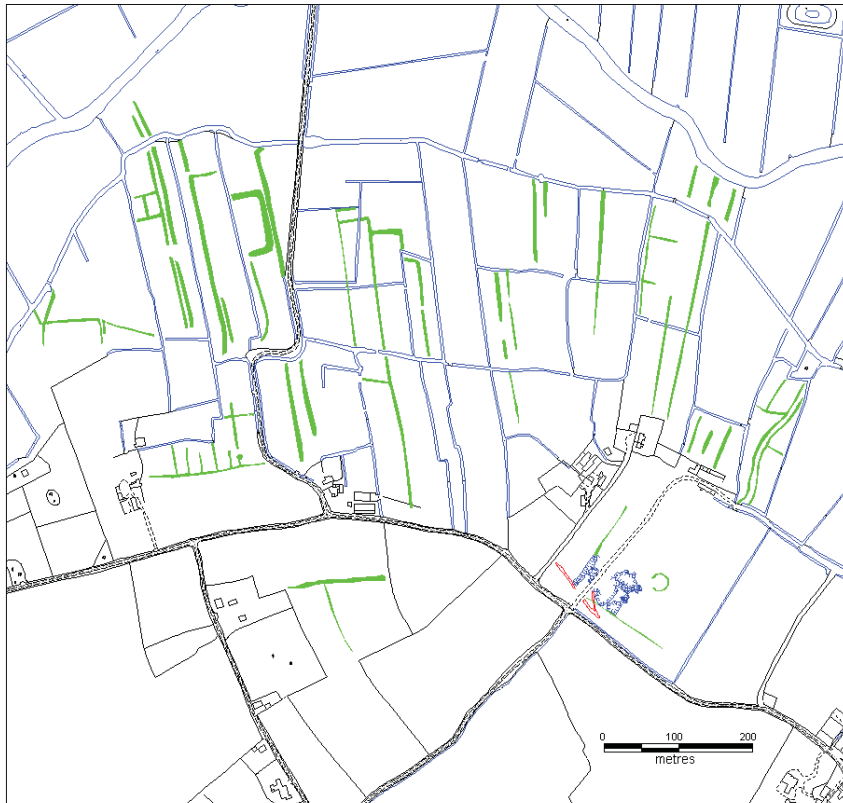


A

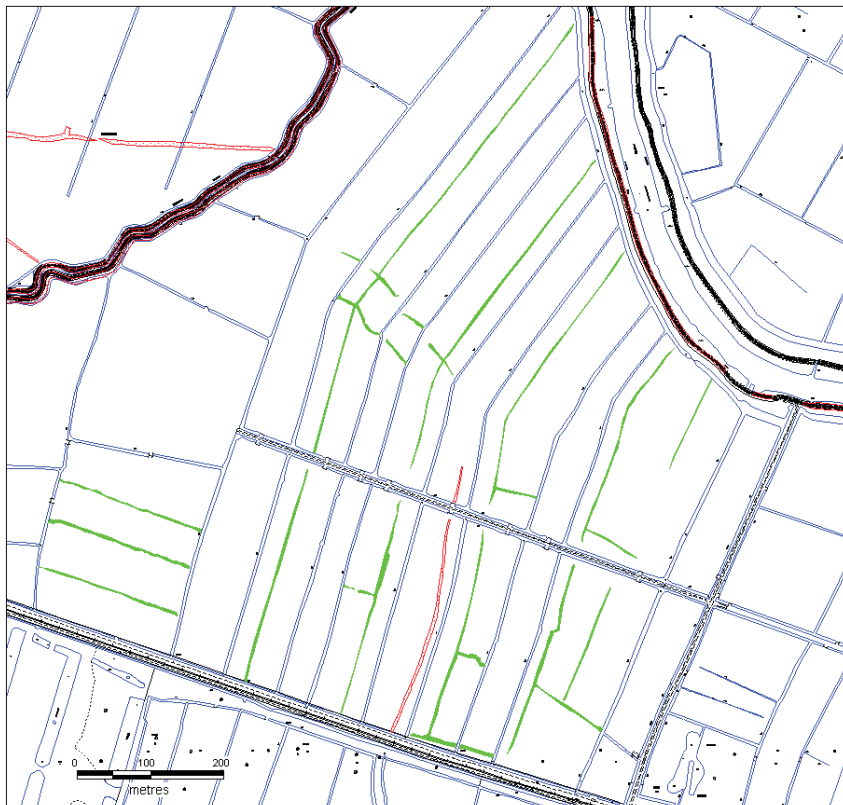


B

Figure 21a: Water management features. A: BRS 031 (TM 413900); B: CAC 041 (TM 495923).



C



D

Figure 22b: Water management features. C: MTT 039 (TM365911); D: WGM 009 (TM446913).

8.5 Industry and Natural Resource Exploitation

A small number of sites related to possible industrial activities or commercial exploitation of natural resources have been identified within the aerial survey area. For the purposes of this report this includes the production of foodstuffs and the exploitation of natural or semi-natural resources. The results are summarised below

8.5.1 Mills

A number medieval and post-medieval of water mills are known in this area, and a newly identified possible moated mill site is described above in section 8.2.4. A previously identified ditch defined square enclosure on unknown function, visible on aerial photographs as an earthwork adjacent to the River Waveney in St Mary South, Elmham parish (SEY Misc, TM 286851; see Figure 23A) may be a further example. It is relatively small in size, the enclosed area only 266 square metres (0.02ha) in area, but the straightened drain to its east may mark the presence of a pre-enclosure mill stream. A post mill is known to have existed in Mendham by 1802 and was previously provisionally located in a field named 'Mill Close' in the tithe apportionment of 1840 (MDM 065, TM 267804). A faint ring ditch in Mendham parish some 70 metres to the north, may be the actual location of this mill (MDM 108, TM 266804; Figure 23B).

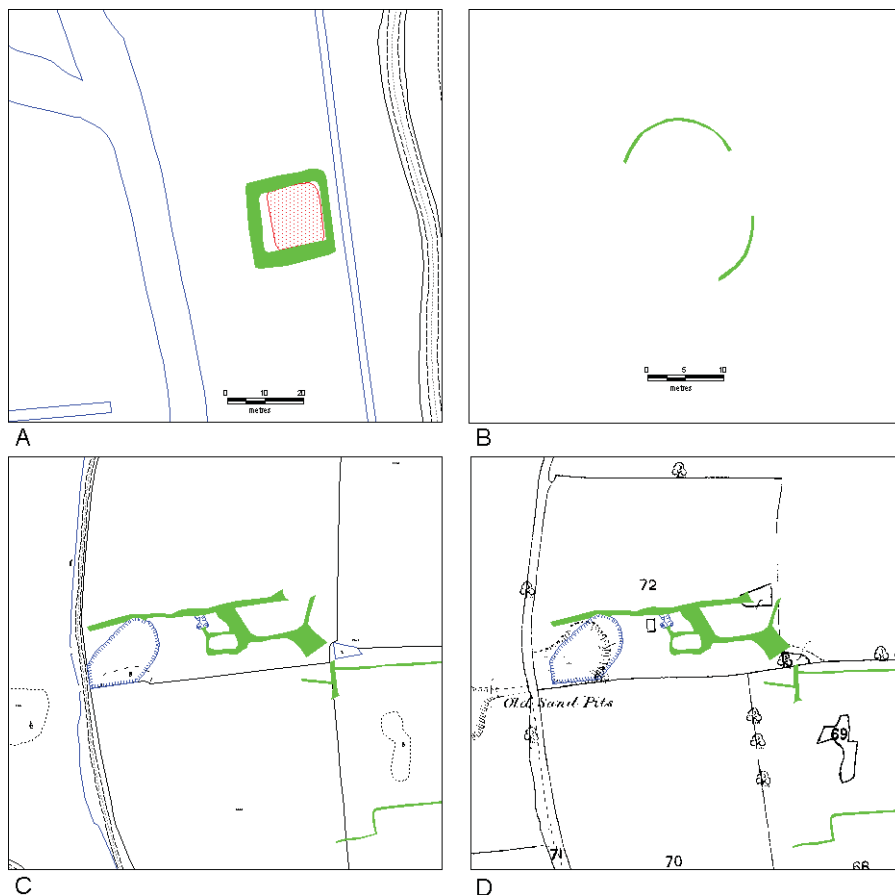


Figure 23: Possible Industrial sites. Possible Mill sites have been recorded in St Mary South, Elmham parish (A: SEY Misc, TM 286851) and Mendham (B: MDM 065, TM 267804). A possible sand extraction sites was also noted in Mendham (B & C, MDM 111, TM 279806).

8.5.2 Extraction

Mineral extraction pits, such as sand pits or gravel pits, are commonly marked on the First Edition Ordnance Survey map and their in-filled remains are frequently visible as cropmarks on aerial photographs. However, as with post-medieval drains and water-management earthworks these are usually not transcribed or recorded. In this instance, however, a number of probable extractive sites have been recorded in association with other archaeological features for completeness.

The extent of a large sand extraction pit in Mendham parish was transcribed in association with the earthwork remains of possible field boundaries, a hollow-way and building platform (MDM 111, TM 279806). The transcription of this possible small industrial complex is illustrated in Figure 23C, and overlain on the First Edition Ordnance Survey map for comparison in Figure 23D. The evidence for peat cutting at Withersdale street is illustrated in Figure 24 (MDM 114, TM 271815). As can be seen, this possible turbarry coincides with a change in soil conditions from clay to fen peat. It is known that many monastic houses exploited the mineral and natural resources on their estates to the full and the possibility of a connection between this site and Mendham Priory is mentioned briefly above in Section 8.2.2 (see Figure 20 above; Aston 2000, 146). The use of peat as a kiln fuel in medieval East Anglian brick ovens is well known, for example at Ely Priory, and may have been exploited by Mendham Priory (Moore 1991, 203; 223). In this instance, it is possible that it continued to be exploited by the in brick making industry well into the post-medieval period, potentially by the brickworks located some 500 metres to the south in Withersdale Street (MDM 074, TM 271809).



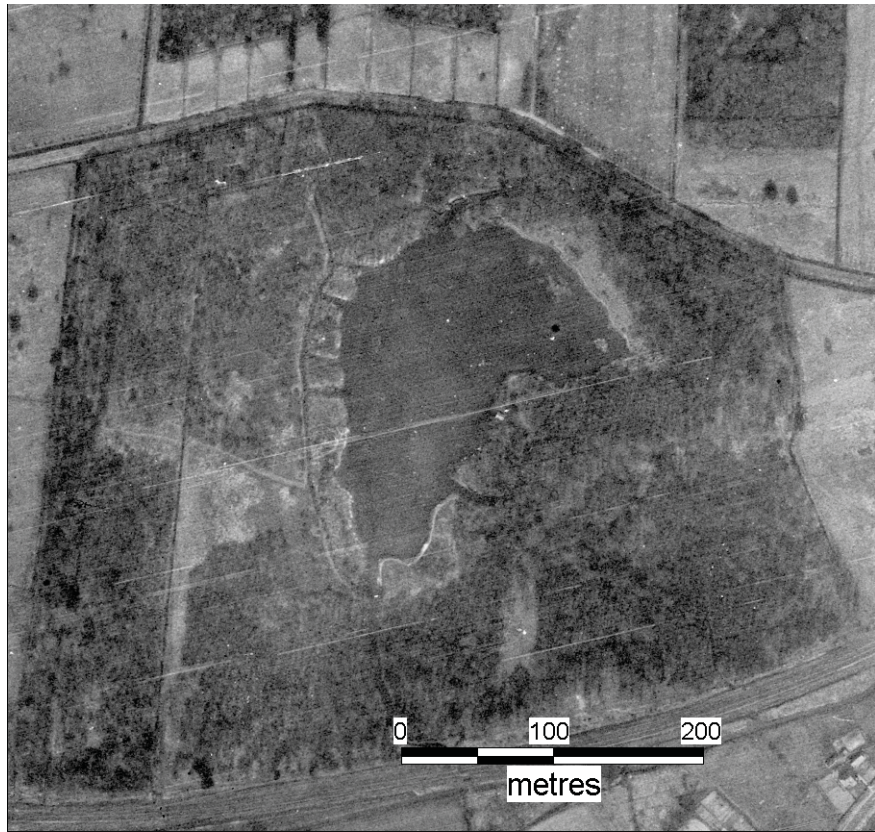
Figure 24: Evidence for peat cutting at Withersdale street (MDM 114, TM 271815).

8.5.3 Intermediate Exploitation

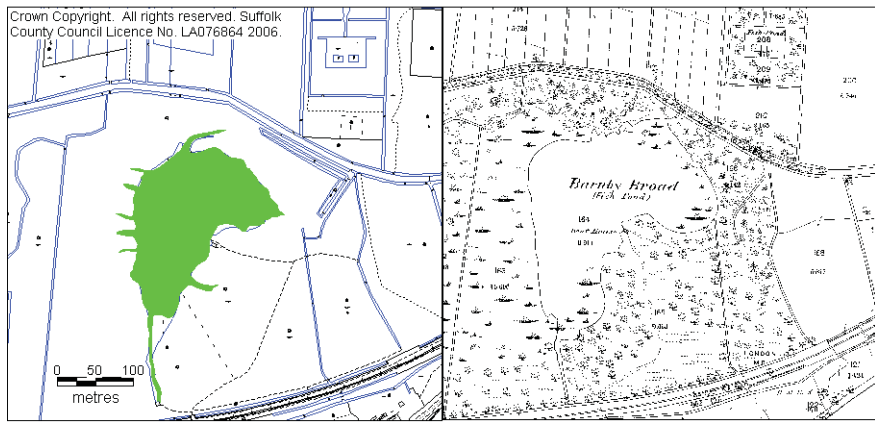
Williamson defines 'intermediate forms of exploitation' as "forms of animal management which were not equivalent to the hunting of truly wild animals, nor yet to the husbandry of fully domesticated ones" (Williamson 1997, 92). This is exemplified by the medieval and post medieval enthusiasm for deer parks, dovecotes and rabbit warrens and as is indicated by these examples, the operation and management of most forms of intermediate exploitation was largely restricted to the social elite.

On aerial photographs of 1946 the body of water known as Barnby Broad displays a number of radial 'arms' or 'pipes' (BNB 009, TM480906; see Figure 25A and B). Although relatively short, this type of feature is characteristic of the ponds or lakes known as duck decoys, intermediate exploitation sites which reached their fashionable peak between the mid 17th and mid 18th centuries (Williamson 1997, 102; Payne-Gallwey 1886). Several examples are recorded in Suffolk, Flixton Decoy (near Lowestoft, FTN 005, TM 511955) being possibly the best known.

However, on the First Edition Ordnance Survey map Barnby Broad is annotated as a fishpond (see Figure 25C), and is approximately 200 metres to the south of a smaller ornamental fishpond which appears to have been built as part of the reclamation of this area, unfortunately obscured from the aerial survey by vegetation. Although also a type of intermediate exploitation popular from the medieval to post-medieval periods (Williamson 1997, 94-96), no such fishpond is marked on Hodkinson's map of 1783. This, and its apparent connection to the smaller, 'reclamation period' fishpond, suggests that it is a relatively recent creation; it is possible that the visible 'pipes' formed during progressive silting of the fishpond. This site is worthy of further investigation.



A



B

C

Figure 25: Barnby Broad (BNB 009, TM480906), fishpond or Duck Decoy?

8.6 Parks and Gardens

Several landscape features visible as cropmark were identified as relating to post-medieval from historic maps. Most of these were in the vicinity of Flixton Hall and probably belong to a mid-19th century phase of landscaping (Williamson 2000, 133). These are illustrated overlain onto the DFirst Edition Ordnance Survey Map to aid interpretation.

A number of the linear features may be forming over the boundaries and internal paths wood boundaries (Figure 26B; MTT 032, TM 361882; Figure 26C, SEC 054, TM 302854), possibly plantations installed as game cover crops. A curvilinear feature to the top of Figure 26C is clearly a relic of a former drive or approach road to Flixton Hall (SEY 034, TM 299858).

The small square cropmark feature illustrated in Figure 26A is a more enigmatic feature (FLN 009 TM298865). Upon excavation in 2003 this was revealed as an enclosure containing a brick built structure of 17th or 18th century date and interpreted as a possible folly structure associated with Flixton Hall Park. An irregularly shaped cropmark visible running across this site, and identified during excavation is probably the remains of the wood boundary visible in Figure 25A and has not been transcribed.

The elaborate planting, paths and parterres of two formal gardens were clearly visible, at Ashman's Hall, Barsham parish (BRS 032, TM 413897), and again at Flixton Hall (FLN 072, TM 303858). Unfortunately, due to poor control on the available photographs it was not possible to transcribe the features at Ashman's Hall. The elaborate Nesfield garden at Flixton is already visible on the First Edition Ordnance Survey map, and has been discussed in more detail by Williamson (2000, 133) and was also not transcribed. The extent of both gardens was, however, transcribed as accurately as possible.

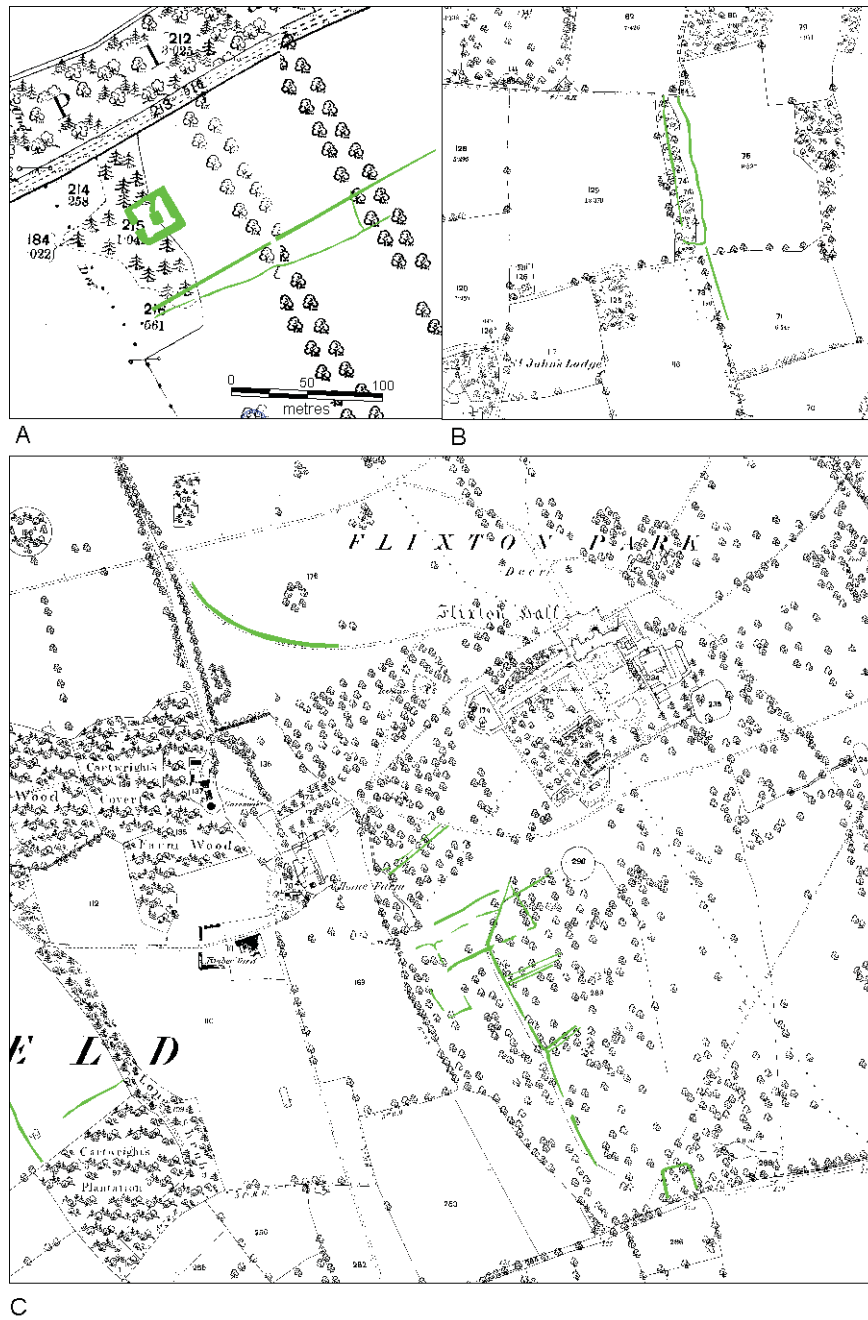


Figure 26: Possible park and garden features. A: FLN 009, TM298865; B: MTT 032, TM 361882; C: SEC 054, TM 302854).

9. THE TWENTIETH CENTURY

9.1 Introduction to the modern evidence

In comparison to previous aerial survey on the Suffolk coast (Hegarty and Newsome 2005) the evidence for modern military remains is relatively limited in this area. Several probable First World War practice trenches have been identified and are discussed below, and the Second World War remains are concentrated in the vicinity of Bungay Airfield.

9.2 The First World War

Evidence for military training in the early twentieth century is limited to two sites. The first is a collection of typically crenellated slit trenches in Beccles parish (BCC 059, TM TM432905; Figure 27A). The complex and interconnected nature of these earthworks is less common however, and is suggestive of a concerted effort to replicate the multi-layered nature of trench warfare, including front line trenches and communication lines to the rear. Lowry illustrates a similar example in Penally, Pembrokeshire (Lowry 1996, fig.5). The remains of these earthworks are located on common land, land already containing a precedent for firearms training in the form of a disused rifle range and butts, probably to reduce their impact on agricultural activity.

The second site is less confidently ascribed a First World War date. WGM 011 in Worlingham parish (TM439906; Figure 27B) is approximately 700 metres to the east of BCC 059, and this proximity may support the suggestion that they are part of the same phase of training activity. Its form, although partially crenellated, is less typical of First World War practice earthworks and it may have originated with Second World War training.

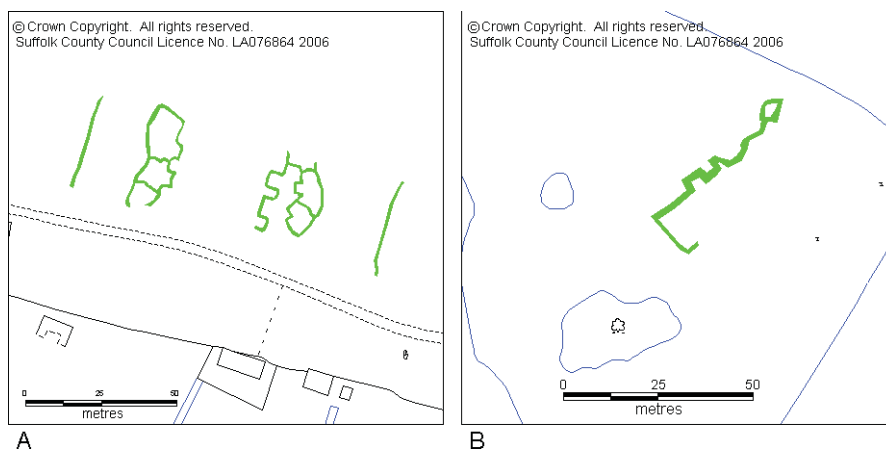


Figure 27: Probable First World War practice trenches in Beccles parish (A: BCC 059, TM TM432905) and in Worlingham parish (B: WGM 011, TM439906).

9.3 The Second World War

Evidence from this conflict is more varied. It consists of limited elements arising from anti-invasion strategies, anti-aircraft defences and civil defence, but the bulk of the visible military structures are associated with the RAF airfield at Bungay.

9.3.1 Anti-Invasion Defences

A number of anti-invasion pillboxes were recorded in this area (BCC 058, TM433908; NHC 017, TM463892; BRS 025, TM408898; WYB 066, TM245810). All appear to be the common Type 25 hexagonal variety, and all are typically located on or adjacent to lines of communication infrastructure, such as the former railway line or road junctions. Only one of the three recorded structures, WYB 066, survives today.

Two areas of aircraft obstruction were noted in Bungay parish, the first on The Lows to the south-west of Outney Common (BUN 085, TM321902) and the second on Stow Fen (BUN 071, TM325883). The precise form of these obstructions was not clear but they are arranged in the typical grid-like pattern intended to prevent the landing of enemy troop carrying aircraft (see Figure 28). They are comparable to more extensive obstructions recorded on the coast, for example at Sutton Hoo (Hegarty and Newsome 2005 130-1; Dobinson 2001).

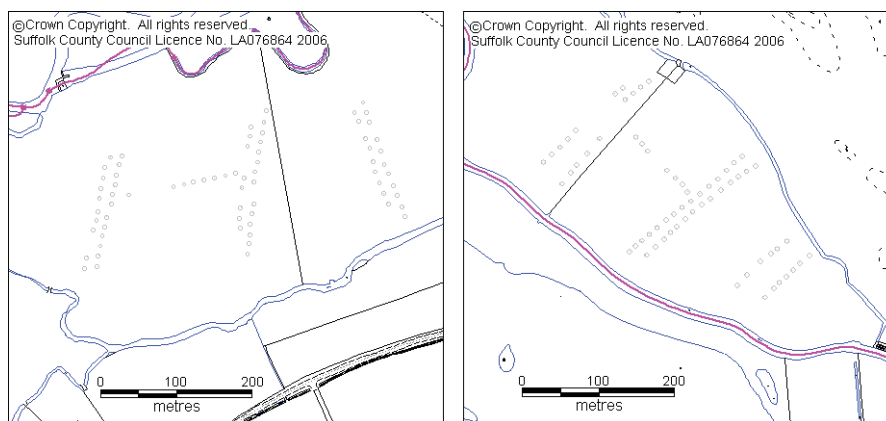


Figure 28: Two areas of aircraft obstruction were recorded in Bungay parish (left: BUN 085, TM321902; right: BUN 071, TM325883).

9.3.2 Anti-Aircraft Defences

In contrast to previous surveys no evidence of Heavy Anti-aircraft Artillery was recorded. However, a related feature type, searchlight batteries, was visible in two locations (see Figure 29). BUN 075 (TM 342874; Figure 29A) is probably the remains of a Troop Headquarters, consisting of a 150 cm light within the largest circular earthworks and three smaller 90 cm lights or projectors within the 'clover-leaf' emplacements (Lowry 1996, 63; for more details see Dobinson 2001). The smaller circular earthworks probably housed Light Anti-aircraft Artillery machine guns and the associated structures the site generator. The typical accommodation huts are not visible and it is possible the detachment were billeted at Three Ash Farm to the north.

Previously recorded as a ring ditch, MDM 006 (TM27048129; Figure 29B) has been reinterpreted as the location of a single 90cm searchlight. The evidence is not as clear as at Bungay, but the circular earthwork emplacement is closely associated

with two structures, probably pillboxes, and a smaller earthwork which may have housed a Light Anti-aircraft Artillery machine gun.

The aircraft obstructions and searchlight battery BUN 075 were both probably located to provide protection to RAF Bungay (see 10.3.5 below), and it is likely further anti-invasion and active anti-aircraft defences are located to the south beyond the survey area.

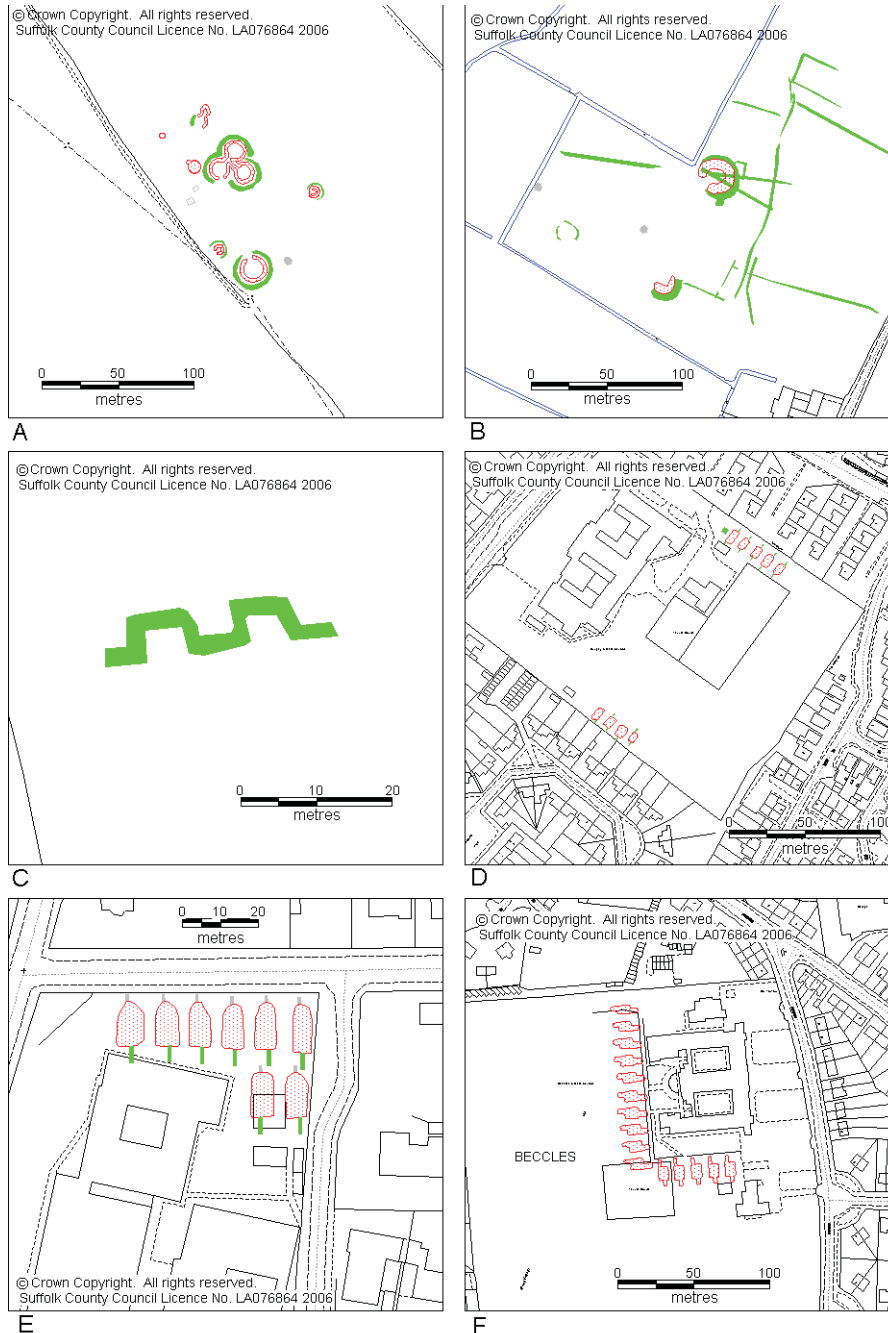


Figure 29: Two searchlight batteries. A: BUN 075 (TM 342874); B: MDM 006 (TM27048129).

9.3.3 Civil Defence

Civil defence measures are visible as several air-raid shelters. A short crenellated slit trench (BRS 026, TM 409897; Figure 29C) visible on aerial photographs up to 1967 as an earthwork in the grounds of Ashmans Hall is probably a form of protection known as a 'garden shelter', or 'Munich Shelter' as they were often commonly constructed in the build up to the Second World War. Quickly dug, most deteriorated over the winter of 1938-9 and were either abandoned or filled in. After war was declared, many were hurriedly repaired and often continued in use throughout the war. Of more permanence were the type of shelter often constructed in school grounds in more built up areas, illustrated here in Figure 29D-F. These semi-sunken shelters were constructed for the protection of pupils and staff in the event of a daytime air raid (Dobinson 2000).

9.3.4 Military Camps

The majority of the temporary military establishments and accommodations recorded in this aerial survey were associated with RAF Bungay, see section 10.3.5 for more information. The exception to this was visible as a tented camp on Outney Common, to the north of Bungay (BUN 084, TM330902; Figure 30). The purpose of this camp is unclear but it probably provided temporary accommodation for troops training on Outney Common, as evidenced by a slit trench approximately 100 metres to the north-west. It is also likely that the grandstand structure marked in this location on the Second Edition Ordnance Survey map was requisitioned as officers' accommodation. The linear ditched features are probably associated with the grandstand.

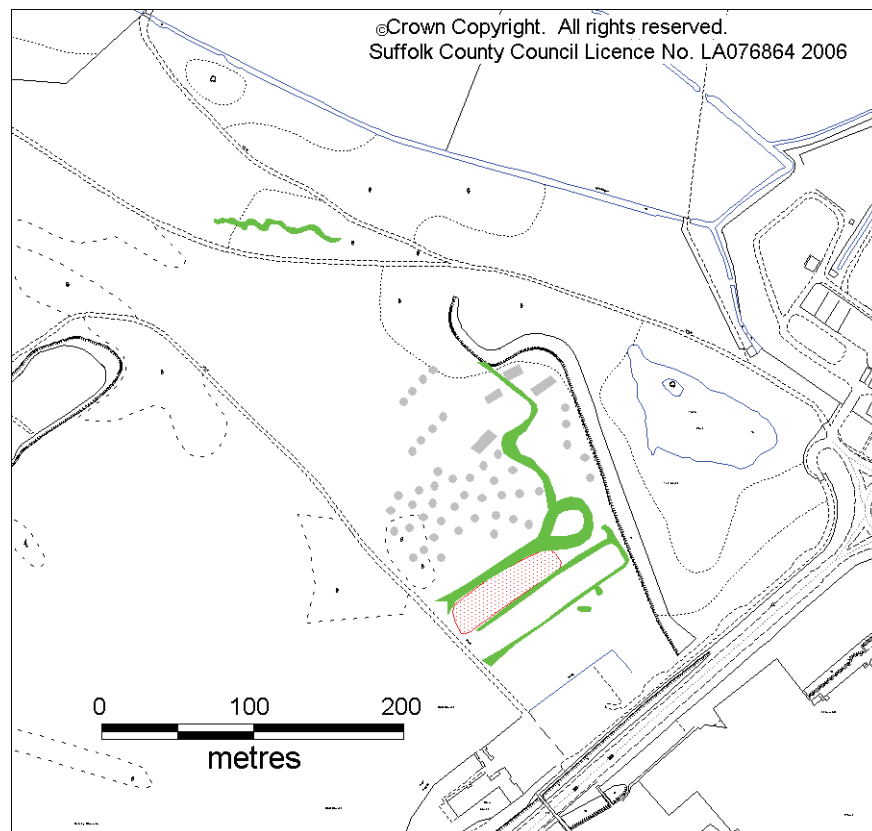


Figure 30: A tented military camp on Outney Common, to the north of Bungay (BUN 084, TM330902).

9.3.5 RAF Bungay

RAF Bungay (BUN 056, TM325867) was constructed in 1942 as a satellite to Hardwick Airfield (where) and even before completion became the home to the United States Army Air Force 428th Bomb squadron. The airfield's satellite status and late construction date may account for its relatively compact form, displaying little of the extensive and complex anti-invasion defences, fieldworks and early warning systems which characterised RAF Martlesham (Hegarty 2006, 43-44). The full extent of the airfield is illustrated in Figure 31.

In addition to the airfield itself 10 associated camps were identified (FLN 067, TM310858; FLN 073, TM309864; FLN 074, TM314862; FLN 075, TM313860; FLN 076, TM309860; FLN 077, TM307858; FLN 078, TM310855; FLN 079, TM313855; FLN 080, TM312853; FLN 081, TM317854; see Figure 31). Unfortunately the poor quality of the available prints precluded their detailed transcription, but it is clear that on several of these sites the roads and trackways survive and continue in use. The function of the camps is unclear but it is likely it included accommodation and workshops. One previously identified camp has been described as a 'communal site' and contains several surviving structures (FLN 067, TM310858).

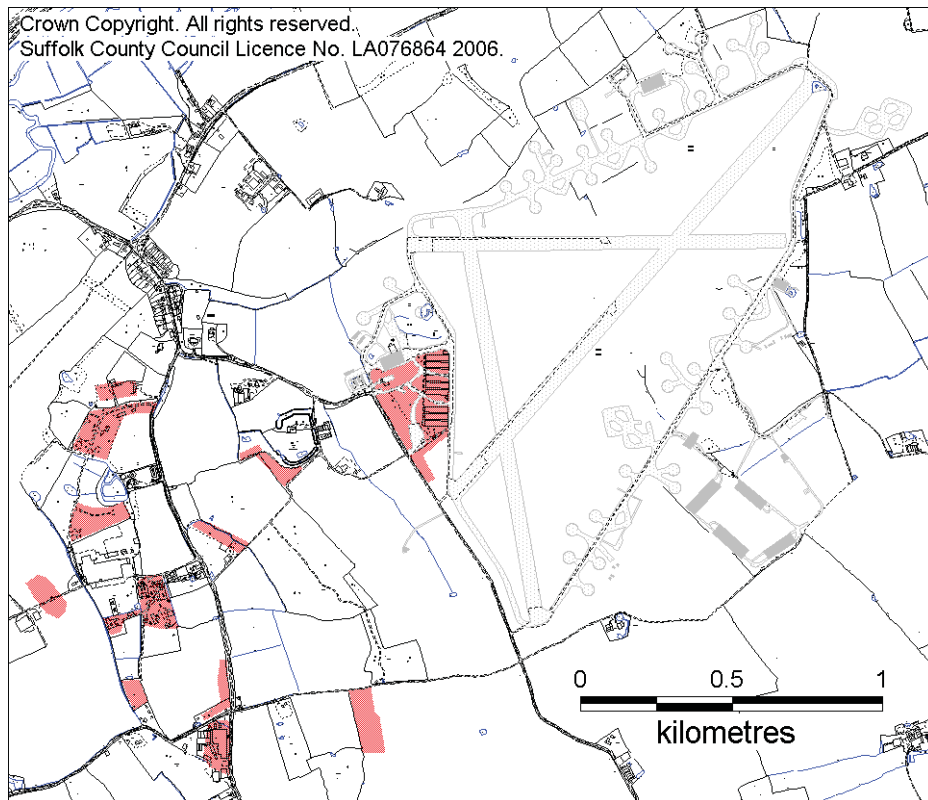


Figure 31: RAF Bungay (BUN 056, TM325867). The location of 10 associated camps is marked in red (FLN 067, TM310858; FLN 073, TM309864; FLN 074, TM314862; FLN 075, TM313860; FLN 076, TM309860; FLN 077, TM307858; FLN 078, TM310855; FLN 079, TM313855; FLN 080, TM312853; FLN 081, TM317854).

10. CONCLUSIONS AND RECOMMENDATIONS

The second aerial survey component of *The Aggregate Landscape of Suffolk: The Archaeological Resource* has proved valuable in providing an up to date and wide ranging overview of the historic landscape of the Waveney Valley, an area of intensive and extensive aggregates extraction.

By extending into the interior of Suffolk, across areas of heavier soils than has been previously been examined by systematic aerial survey, the survey has placed the visible sites into their widest possible context, particularly in comparison with the neighbouring areas of previous aerial survey on the coast. The survey has placed the visible sites into their widest possible context, providing important data for comparison with ongoing aerial survey across the border in the Waveney valley in Norfolk. Most significantly it has enhanced the quality of data available to Suffolk County Council's sites and monuments record for this busy area of aggregates extraction, ensuring the greatest possible consideration in future aggregates industry mitigation decisions.

The results for the area of the Waveney valley contrast greatly with the general patterns previously identified along the coast and on the Felixstowe Peninsula (Hegarty and Newsome, 2005; Hegarty 2006). The most noticeable difference is in the significantly lower proportion of sites of prehistoric and Romano-British date visible as cropmarks. This is undoubtedly a consequence of the geological dominance of alluvium and fen peat and poorly draining soils, mostly loam or clay with large areas of fen peat to the east.

However, these periods may be represented. Possible earthwork evidence for a Neolithic oval enclosure in Mettingham and cropmark evidence for field probable Iron Age or Romano-British systems visible on a few small pockets of gravel support the interpretation of an actively exploited and populated landscape, already strongly indicated by the existing evidence recorded on the county SMR, including finds dating from the Neolithic onwards. The partial but distinct cropmark of a possible rectangular rampart may also add significantly to our understanding of Iron Age forts in East Anglia. Recent discoveries of a later-prehistoric trackway on Beccles marshes and ongoing investigation of an elongated oval enclosure of possible Neolithic date enclosure at Flixton simply add further to the evolution of this body of knowledge.

However, the virtual absence of evidence from the Anglo-Saxon and medieval periods is in keeping with the pattern on the coast. This is due to a number of factors. It is difficult to identify unenclosed settlements from the early medieval period on aerial photographs, particularly in areas of poor cropmark formation. It is possible that visible cropmarks contain unrecognised early medieval elements amongst the prehistoric and medieval field boundaries and settlements, but it may be more probable that such features remain fossilised in the extant settlement pattern. This uncertainty is reflected in the fact that the single site identified in this survey as potentially Anglo-Saxon in date is equally, if not more likely, to originate with Roman or Neolithic activity.

The survey was most effective in enhancing the record for earthwork sites of medieval and post-medieval date. The majority of newly identified records related to settlements, including a number of probable moated sites, and associated land management and communication features, including extensive water management

earthworks. Of particular interest is the evidence for reduction in settlement size and complexity, the shrinkage of medieval and post-medieval hamlets and enclosure of common land contributing to the dispersed settlement character of this area. Amended

Despite the low invasion threat to this area, the final theme to emerge originates with the two major twentieth century conflicts. Military activity was significantly more localised than on the coast or on the Felixstowe peninsula. Anti-invasion defences were limited to two small areas of aircraft-obstruction and a handful of pillboxes, although civil defence measures were well represented in the towns of Bungay and Beccles. The greatest focus of purely military activity, however, was in the environs of RAF Bungay.

It is possible that the Military Aerodrome Traffic Zone surrounding RAF Bungay, and to some extent RAF Beccles was responsible for the limited archaeological aerial reconnaissance in this area. However, the closure of both airfields would not explain the recent dearth of high quality images; this may simply be a reflection of the poor visibility of archaeological features in comparison with the nearby sandlings.

In the light of these conclusions the following general and specific recommendations are made:

- The potentially Neolithic sites in this area should be target by combined investigations to ascertain their true extent and date, most particularly the possible post built structure BRS 017. This should be a high priority in light of recent discoveries.
- Similarly, the full extent, date and nature of the evidence for the possible Iron Age fort in Mettingham should be investigated by geophysical survey and targeted excavation.
- The enigmatic and probably non-archaeological features identified on Beccles Marshes should be investigated by walkover surveys and test pitting to identify their true nature and prevent future confusion.
- The extensive settlement evidence for medieval and post-medieval is worthy of further investigation. Any relationship between the cropmark enclosed settlements and the surrounding extant farms and field systems may shed light on the establishment of the medieval settlement pattern. The evidence of settlement abandonment and shrinkage also presents a prime opportunity for cross-disciplinary research into the further development of the dominant pattern of dispersed farmsteads and hamlets, with particular reference to the distribution and role of moated sites.
- One particular aspect of medieval settlement organisation and development which warrants individual attention is the role of Mendham Priory in the growth and possible shrinkage of neighbouring Withersdale Street, and the potential connection between this monastic house and local industry, chiefly the growth of local brickworks.
- For the post-medieval period, the nature of Barnby Broad needs clarification. Field investigation in conjunction with historical research may reveal which semi-natural resource this feature was created to exploit.

- Finally, consideration must be given to the modern military remains in the environs of Bungay. Further aerial survey and subsequent ground truthing would provide a fuller picture of the impact this site had on the wartime landscape and identify any further surviving structures which may be worthy of protection.

However, the primary recommendation of this report for future programmes of aerial reconnaissance is to concentrate on improving the quality of specialist oblique photographic coverage of this area, with particular reference to providing adequate control for future analysis.

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12. APPENDIX 1 – NMP METHODOLOGY

Archaeological scope of the survey

All archaeological features have been recorded, both plough-levelled and upstanding remains, with a potential date range from the Neolithic period to the twentieth century, including industrial and military features. Sites appearing on the Ordnance Survey base map which have not been photographed, or which are completely obscured by vegetation, have not been recorded, but have been discussed where they may relate to visible archaeological remains.

Plough-levelled features and earthworks

All cropmarks and soilmarks which represent buried cut features (i.e. ditches and pits), earthworks or stonework of archaeological origin have been recorded. All earthwork sites visible on aerial photographs have been recorded, whether or not they have been previously surveyed (including those marked on the Ordnance Survey maps), and whether or not they are still extant on the most recent photography. The accompanying Sites and Monument Record database record will specify which elements of any particular group of earthworks survive or have been levelled and/or destroyed.

Ridge and furrow and water meadows

Areas of ridge and furrow have been recorded using a standard convention to indicate the extent and direction of the furrows. Areas of extensive water meadows thought to pre-date 1945 have also been transcribed and recorded.

Buildings

Foundations of buildings which appear as earthworks or exposed stonework have been recorded. Cropmarks and soilmarks representing earthworks or buried foundations have also been recorded. Standing buildings which have been destroyed have been recorded when there is no other adequate record.

Industrial and 20th-century military archaeology

Areas of industrial archaeology have been recorded using the appropriate conventions where they can be recognised as pre-dating 1945. Extraction sites have been mapped if their inclusion was thought to enhance the record.

20th-century military features have been recorded to an appropriate level of detail. The major buildings and structures within military complexes, as well as isolated military structures, e.g. buildings associated with searchlight batteries, pillboxes or anti-invasion obstructions have been mapped.

Field boundaries and geological marks

Removed field boundaries have not been routinely recorded unless they are extensive and could be confused with the remains of earlier field systems or are not recorded on historic Ordnance Survey maps, in which case their presence and extent has been noted in a monument record.

Geological features visible on aerial photographs have been plotted only if their presence helps to define the limits of an archaeological site. If the marks could be confused with archaeology then they may be noted in the SMR database monument record.

Sources

Aerial Photographs

Oblique and vertical photographs have been consulted where available.

1. National Monuments Record (NMR) vertical and oblique collections:

NMR Enquiry and Research Services
English Heritage
National Monuments Record
Kemble Drive
Swindon
SN2 2GZ
01793 414700

2. Unit for Landscape Modelling (formerly Cambridge University Committee for Air Photography (CUCAP) vertical and oblique collections:

University of Cambridge
Unit for Landscape Modelling
Sir William Hardy Building
Tennis Court Road
Cambridge CB2 1QB
01223 764377

3. Suffolk County Council Sites and Monuments Record (SMR) oblique collection:

Suffolk County Council Archaeological Service
Shire Hall
Bury St. Edmunds
IP33 2AR
01284 352445

Documentary sources

1. Suffolk Sites and Monuments Record

The relevant Monument and Event records from the SMR have been used as an aid to interpretation.

2. National Monuments Record (NMR)

The relevant Monument and Event (including Excavation Index and maritime records) records from AMIE have also been used as an aid to interpretation.

3. Historic maps.

These included Ordnance Survey first and second edition 25" maps from the late 19th and early 20th centuries. The 1955/6 edition Ordnance Survey Archaeology Division 1:10,560 field sheets (the precursors to the current NMR record maps) have also been consulted and have proved valuable in identifying removed field boundaries and structures.

4. Source material for modern military sites.

These sources included the results of two recent major projects, the Defence of Britain Project, administered by the Council for British Archaeology (CBA), and the *Twentieth*

century fortifications in England report series by Colin Dobinson, commissioned by English Heritage from the CBA. The *Twentieth century fortifications in England* report series is unpublished but available for research at the NMR library.

Council for British Archaeology,
Bowes Morrell House
111 Walmgate
York
YO1 9WA
01904 671417 <http://www.britarch.ac.uk/projects/dob/index.html>

Methodology

Digital Transcription

Rectification of photographs

The photographs were scanned and rectified using the AERIAL5 Photograph Rectification programme designed by John Haigh at the University of Bradford. Control information taken from digital copies of Ordnance Survey 1:2500 scale maps for terrestrial areas will be within a level of accuracy of +/- 3m. Where necessary, digital terrain models were created from the Ordnance Survey 5m-interval contours to compensate for height distortion across the control points.

The archaeological features on the rectified images were digitised in MapInfo GIS using the appropriate NMP conventions (see Appendix 2). The control points and mapped detail are accurate to the base map within 2m. Archaeological features are depicted according to the form of remains e.g. banks, ditches, stonework etc. The features transcribed from the photographs should be within 5m of true ground position.

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Database Records

1. Sites and Monuments Record

Monument records have been created for each site mapped in a copy of the Suffolk County Council SMR, using the ExeGesIS HBSMR software. Each record is linked by a unique identifier reference number to a MapInfo monument polygon, defining the geographical extent of the record. The main elements of the monument record comprise location, indexed interpretation, textual description and main sources, including the aerial photographs which best illustrate the site.

Storage of data and archiving

The graphical record consists of the digital files created in MapInfo. A paper copy of each 1:10,000 sheet will be produced for the NMR archive. All other materials selected for archiving will be archived according to English Heritage guidelines.

The copyright for all transcriptions, digital files and accompanying records (paper and digital) is jointly held by English Heritage and Suffolk County Council.

Access to data

All NMP project data will be integrated into the main Suffolk County Council SMR database held in Bury St Edmunds, and into the NMR database (AMIE) held at the National Monuments Record in Swindon, and will therefore be available for public access.

Project statistics

During the project 154 new records have been added to the SMR. 34 existing records have been amended.

The number of new records can be broken down into broad period ranges as follows:

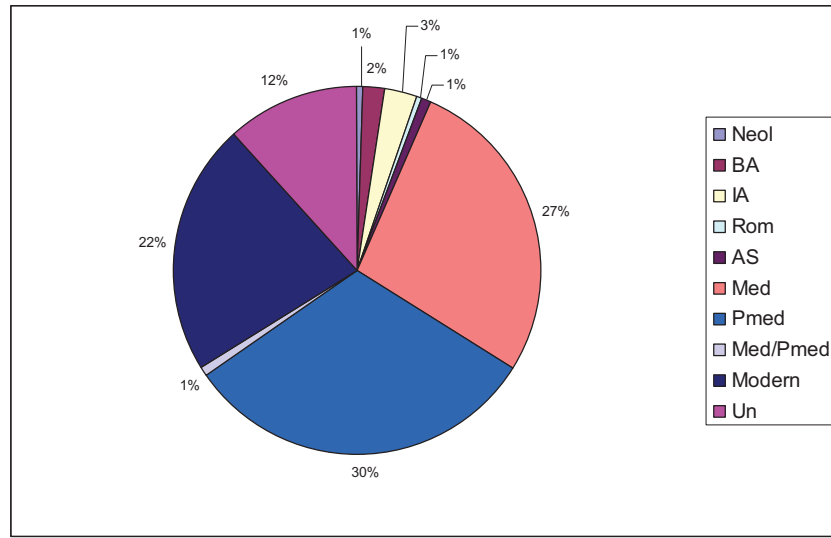


Table 1: Percentage of new records by period. It must be noted that many features have interpreted dates that span more than one period, and these figures must therefore be seen only as indicative of general patterns.

The number of amended records is similarly broken down in Table 2 below:

